DOCUMENT RESUME

ED 052 362 VT 013 495

TITLE	Report from the National Institute on Exemplary Projects in Vocational Education.
INSTITUTION	Nevada State Dept. of Education, Carson City.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	Jul 70
NOTE	148p.; Institute conducted at Squaw Valley, Calif., July 19-23, 1970
EDRS PRICE	EDRS Price MF-$0.65 HC-$6.58
DESCRIPTORS	*Conference Reports, *Demonstration Projects, Dropout Programs, *Models, Program Development, Program Effectiveness, *Program Evaluation, Program Guides, Projects, Research Projects, Systems Approach, *Vocational Education

ABSTRACT

This document is a compilation of the presentations made at the 1970 National Exemplary Institute, a conference designed to serve as a guide for exemplary projects being undertaken across the country. Presentations included in the document are: (1) "The Characteristics of This Changing Age in Our Vocational Education" by Luis Morton, (2) "The Role of Exemplary Programs in Educational Reform" by Albert Riendeau, (3) "The Importance of Accountability for Exemplary Programs" by Leon Lessenger, (4) "A Model for the Operation of Exemplary Programs" by Robert Barnes, (5) "Emerging Substitute Systems of Education for High School Dropouts and Potential Dropouts" by Leon Minear, (6) "An Approach to Evaluation: A Model for Evaluating the North Carolina Exemplary Program" by Robert Morgan, (7) "The Craft of Evaluation" by Eugene Griessman, (8) "An Evaluation System for Exemplary Projects" by Robert Barnes, (9) "Presentation of a Dissemination Model for Exemplary Projects" by Tom Clemens, (10) "Guidelines for Dissemination of Exemplary Project Information" by Larry Hutchins, (11) "A Management Model for Exemplary Projects" by Stephen Knezevich, and (12) "Expectations for Exemplary Project Directors by the Pilot and Demonstration Branch, USOE" by Sidney High. (JS)

Report From

THE NATIONAL INSTITUTE ON EXEMPLARY PROJECTS IN VOCATIONAL EDUCATION

JULY 1970

THE NATIONAL INSTITUTE ON EXEMPLARY PROJECTS IN VOCATIONAL EDUCATION

July 19-23, 1970
Olympic Village
Squaw Valley, California

Exemplary Institute Conducted By

J. Clark Davis, Director
Denis Graham, Assistant Director

Sponsored By

Nevada State Board for Vocational Education
Vocational-Technical Education Branch
John W. Bunten, Director

Funded By

United States Department of Health, Education and Welfare
Office of Education
Education Professions Development Act
Vocational Technical Education Branch
William G. Loomis

Initiated By

Pilot and Demonstration Branch
Division of Vocational-Technical Education
Dr. Albert J. Riendeau, Chief
Dr. Sidney C. High, Senior Program Officer
Mrs. Joyce Dechman, Program Officer

An EPDA Project

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INTRODUCTION

The following is a compilation of the presentations made at the July 19-23, 1970 National Exemplary Institute in Squaw Valley, California. The conference was designed to serve as a guide for exemplary projects being undertaken across the country.

This booklet should serve as a valuable resource for those who are involved in the many faceted activities of implementing an exemplary program within their state. Many suggestions are offered. Many concepts and ideas can be used. It is our hope that the time and effort of the contributors to this resource booklet will not have been spent in vain, but that the information will be used where and when it will serve the best efforts of exemplary project staff personnel across the country.

J. Clark Davis
National Exemplary Institute
Director

NATIONAL EXEMPLARY CONFERENCE PROGRAM

Sunday, July 19, 1970

2:00 - 6:00 p.m.

REGISTRATION

6:00 - 8:30 p.m.

BANQUET
Dinner Greetings:
Dr. J. Clark Davis, Director, Nevada Research Coordinating Unit
Mr. John W. Bunten, Vice-President, National Association, State Directors of Vocational Education
Dr. Arthur Lee Hardwick, Associate Commissioner, BAVTE, U.S.O.E.
Dr. Albert J. Riendeau, Chief, Pilot and Demonstration Branch, U.S.O.E.
Keynote Address:
"Candlelight Planning for a Satellite World"
Dr. James D. MacConnell, Professor of Education, Stanford University

Monday, July 20, 1970

8:00 - 9:30 a.m.

REGISTRATION

9:30 - 10:30 a.m.

"Vocational Education from the Viewpoint of the National Advisory Council on Vocational Education"
Dr. Luis M. Morton, President, Central Texas College

10:30 - 11:00 a.m.

COFFEE AND INFORMAL INTRODUCTION OF PARTICIPANTS

11:00 - 11:45 a.m.

"The Role of Exemplary Programs in Educational Reform"
Dr. Albert J. Riendeau, Chief, Pilot and Demonstration Branch, U.S.O.E.

11:45 a.m. - 1:15 p.m.

LUNCH

Monday, July 20, 1970

1:15 - 2:15 p.m.

"The Importance of Accountability for Exemplary Vocational Programs"
Dr. Leon Lessenger, Calloway Professor of Education, Georgia State University

2:15 - 2:30 p.m.

COFFEE

2:30 - 4:00 p.m.

"Project Management: A Model for Internal Operation of Exemplary Projects"
Dr. Robert Barnes, Director, California Research Coordinating Unit

5:00 p.m.

DINNER

Tuesday, July 21, 1970

9:00 - 9:30 a.m.

"Emerging Substitute Systems of Education for
High School Dropouts and Potential Dropouts"
Dr. Leon Minear, Director, Division of Vocational and Technical Education,
BAVTE, U.S.O.E.

9:30 - 10:45 a.m.

Presentation of Paper and Model on Evaluation of Exemplary Projects
by Center for Occupational Education, North Carolina State
Dr. John Coster, Presiding Director, Center for Occupational Education,
North Carolina State
Mr. Robert L. Morgan, Center for Occupational Education, North Carolina State
Dr. Eugene Griessman, Alumni Professor and Head, Department of Sociology,
Auburn University (formerly on staff of Center for Occupational Education)

10:45 - 11:15 a.m.

COFFEE

11:15 - 12:00 a.m.

General participants' questions on evaluation
directed to Center for Occupational Education staff
Dr. Eugene Griessman, Mr. Robert L. Morgan

12:00 - 1:30 p.m.

LUNCH

Tuesday, July 21, 1970

1:30 - 2:30 p.m.

"An Evaluation System for Exemplary Projects"
Dr. Robert Barnes

2:30 - 2:45 p.m.

"Remarks on Evaluation"
Dr. Larry Hutchins, Far West Regional Lab

2:45 - 3:00 p.m.

COFFEE

3:00 - 4:00 p.m.

Participants work in small groups with Institute Consultants to apply evaluation model concepts to their specific exemplary projects
Chairmen: *Dr. Shrink, Dr. Coster, Dr. Barnes, Dr. Griessman, Dr. McFann, Mr. Morgan*

5:00 p.m.

DINNER

Wednesday, July 22, 1970

9:30 - 10:30 a.m.

"Presentation of a Dissemination Model for Exemplary Projects"
Mr. Tom Clemens, Acting Director, Division of Practice Improvement, National Center for Educational Communication

10:30 - 11:00 a.m.

COFFEE

11:00 - 11:45 a.m.

Selected participants react to Mr. Clemens' presentation
Dr. Richard L. Barker, Mr. John W. Bunten, Dr. K. M. Eaddy, Mr. Paul W. Gaiser

11:45 a.m. - 1:30 p.m.

LUNCH

Wednesday, July 22, 1970

1:30 - 2:30 p.m.

"Guidelines for Dissemination of Exemplary Project Information"
Dr. Larry Hutchins

2:30 - 2:45 p.m.

General participants' questioning of Dr. Hutchins concerning his presentation

2:45 - 3:00 p.m.

COFFEE

3:00 - 4:00 p.m.

"A Management Model for E: lary Projects"
Dr. Stephen Knezevich, Associate Secretary, AASA

5:00 p.m.

DINNER

Thursday, July 23, 1970

9:00 - 10:00 a.m.

"Expectations for Exemplary Project Directors by
the Pilot and Demonstration Branch, U.S.O.E."
Dr. Sidney C. High, Senior Program Officer, Exemplary Programs, U.S.O.E.

10:00 - 10:30 a.m.

COFFEE

10:30 - 11:30 a.m.

Resume of Institute Proceedings
Dr. Howard H. McFann, Director, Division #3, HumRRO

11:30 - 1:00 p.m.

LUNCH

1:00 p.m.

INSTITUTE IS TERMINATED

SECTION I

KEYNOTE ADDRESS

CANDLELIGHT PLANNING FOR A SATELLITE WORLD

Dr. James D. MacConnell

Professor of Education
Director, School Planning Laboratory
School of Education
Stanford University

Few of us are capable of living up to the expectations of people concerned with education today. Sometimes I feel a sense of kinship to William Howard Taft's great grand-daughter who recently wrote an autobiography for her third grade class which went like this: "My great grandfather was a United States Senator, my father was an Ambassador and I am a Brownie."

The major problem most of us are facing today is our desire to cling to the past, although our culture is a composite of the past. It is the assimilation of history, art and science as passed on to us through the centuries. Each of the objects around us has a point of origin in the past, but we have no comparable link with the future. Instead, our concept of the future is a concept of continual change. And there is no business or institution which depends more on this concept than education. Businesses are used to planning ahead for at least ten years. But even ten years after our students begin school, most of them will still be in school. In fact, most of them will be in some kind of structured educational program most of their lives. As we plan for an additional one million people in this country by the turn of the century, we must take time out to do some thinking. Research shows that if careful planning can guide our rapid movements, we will profit both socially and economically.

Our society is not only changing, but it is changing at a faster rate than ever before. Radical change, as exhibited by the growth in population and scientific knowledge, is penetrating deeply into the fundamentals of nature and life itself, opening fascinating new worlds and creating new problems. Problems in planning for the modern society, especially in such far-reaching institutions as education, are rooted in tradition and deep emotional feelings. A few comparisons of changing events during our short time on this earth are sufficient to jolt the most conservative. Just think -- a Boeing 707 or DC-8 taking off on an overseas flight burns more fuel in the first three minutes than Lindbergh's plane did in twenty-two hours. The country's biggest airline proudly boasted in 1940 that it would fly 100,000 passengers during that year -- the same airline is currently carrying that many passengers every two days. In early 1970 when the 747 came into service, these data were replaced by even more dramatic figures. We associate air carriers with planned progress, yet they too often find their long range plans ending up as inadequate short range plans.

Planning for the future depends largely upon cooperative activities effectively organized. We can no longer be loners, but rather, we must be team players who can work intelligently with many others on extremely delicate decisions usually not under our total control. The question is not whether, but how to plan. Who decides, by what means, and for what purpose? What criteria of judgment are used? What power is used to persuade or enforce conformity with them? There are many problems to be solved and a long way to go before education will have reached the levels of modernization and productivity already achieved by many other parts of our economic and social environment.

Being aware of the trends enables us to better plan for the future. There will be more older people. Women in the labor force will increase by an half-million a year and will require special kinds of education to assist them in re-entering the labor market.

Still another problem we face is the occupational outlook. Until fairly recently, people trained for a given profession were expected to stay at it throughout their working lives. Yet, within the life span of our generation, the notion of serving in a single occupation for a lifetime is antiquated. Some 70 percent of the skilled trades in American manufacturing in the year 1900 do not exist today, and a large portion of today's skills will become obsolete within a very short time. Occupational needs are changing so rapidly that individuals must look forward to three or four intervals of retraining during their careers, in order to keep up with their professions and trades. Although in the past much of this retraining and re-educating has been sponsored and managed by industry, today the educational institutions of this country are being asked to play a key role in this area. The counselor of today must be able to project trends in employment opportunities of the future. Compare the employment needs of today with those of twenty-five years ago when we had no jets, no television or digital computers; yet today over a million of us are working in these fields. And these three areas alone contribute over fifteen billions of dollars to our gross national product annually. Until a few years ago hard work was lauded -- today speed, accuracy and efficiency are winning the brownie points. Nineteen hundred sixty-seven was the first year in our history when we were paid more for thinking than lifting.

The population shift to metropolitan areas continues. In 1790 our first U. S. census showed that 95 percent of us lived in rural areas. And, as recently as 75 years ago, two out of three Americans lived in the country. But in 1960, more than 63 percent of the population lived in the greater metropolitan areas. In looking at the projected population growth for the next five years, we find that 50 percent of the growth will occur in approximately twenty metropolitan areas. This movement is not peculiar to the United States. Population shifts of this magnitude have important consequences for education. More people are being educated in the better quality program demanded in metropolitan areas. In order to accommodate the migrating population, new facilities must be created for demands far beyond those based upon population growth alone.

It is evident that workers will work fewer hours, will have longer vacations and retire earlier. The average work week has been shortened by eight hours since 1945. In California, adult enrollment is increasing at about 50,000 students a year. Almost two million adults are now enrolled in California's schools. Because of Federal aid, more attention is being given to basic adult education and making the functionally illiterate economically self-sufficient.

By 1975 unskilled and semi-skilled jobs will decrease from 24 to 20 percent (there is no room at the bottom) while managerial and professional jobs will increase from 22 to 25 percent. Vast adult education programs will be required for the next two or three decades to raise the general educational level of workers and train them for new skills - new technological changes will make it necessary for industry and education to work together on frequent retraining programs. More people will be required in service and professional work - jobs requiring technical abilities, math, science and personnel relations. This means changing curriculum.

Although the three R's still play a key role today, according to the 1960 census over twenty-three million persons over the age of 25 had less than eight years of school. However, the poor reader has many aids to help keep him informed if he so desires. Color T.V., *Look* and *Life* magazines are making their contribution.

Then, too, the fear of early retirement in an age of inflation is a new factor in the worker's already complex life. He has witnessed the disappearance of many major occupations of his youth. He now faces the need to learn a new trade or experience forced retirement. Both of these problems bring great responsibility to those concerned with vocational education.

New instructional methods are evolving. Enrollment growth, the larger consideration for students as individuals, new technology and retraining demands have made it necessary to make changes in the conventional methods of teaching. There must be total involvement by teachers and students in the educational process. Areas for learning are no longer mere repositories and dispensers of knowledge; education is a laboratory for problem solving; it is no longer a telling and listening process.

There is and has been for some time a heavy emphasis on researching the technical and "hardware" aspects of teaching. Audio-visual aids, computers, programmed texts, flexible time scheduling, open space architectural designs, etc., have been explored and developed to a rather sophisticated degree. The curriculum content, the presentation techniques and the physical environment are all under scrutiny from diverse points of view, and progress in their design and refinement is certainly being made. Our experience with the implementation of such developments, however, suggests that no matter what innovative materials or systems to facilitate learning a teacher and student may have at their disposal, if they themselves have not altered some of their most fundamental habits of teaching-learning behavior, improvement in learning is not realized. In other words, great amounts of money and time are being wasted because people have not capitalized on increased opportunities for flexibility in behavior.

Too much time in structured learning situations is taken up with strangers doing things to strangers with the consequence that significant communication between instructors and students does not take place. It must finally be realized that the process of learning, the experience of learning, is part of the content of learning.

Often an attitude of "not wanting to learn" is common for the reason that instructors seldom discover how the learner perceives the learning context of the educational program and what his own personal ambitions or purposes are. He may not want to learn what the instructor thinks he should want to learn at a given time. It is apparent that many of the acceptable learning and teaching techniques for youth today have not been transferred to the areas of adult education. As educational facilities are being planned to accommodate more individual learning situations, the adult program should also be geared to using them. Instructors are certainly aware that they are faced with a class, a collection of bodies, but the significant differences among the students as individuals with individual dispositions, ambitions, preferences, purposes, fears, weaknesses, needs, abilities, etc., are virtually unknown to many instructors and taboo in group discussions or projects.

One must know who is doing the teaching and for what reasons, who is doing the learning and for what reasons, what is going to be learned and for what reasons before significant and meaningful learning can take place.

We must admit that the study of the learning process begins with people, and there is no reason why it can't be as tempting and as much fun as pulling the lever in some game of chance.

Everyone realizes that education costs money, but can we afford not to participate in the economic benefits of a sound educational system? Centuries ago, Confucius said: "If your plan is for one year, plant rice; for ten years, plant trees; for a hundred years, educate men." M. J. Rathbone, former Chairman of the Board and chief executive officer of Standard Oil Company (New Jersey), in a publication entitled *Human Talent: The Great Investment*, states: "The most important capital that any economy possesses are the skills which people carry around in their heads."

We will see the educational programs, methods and equipment of yesterday become obsolete and be discarded in another decade. However, the building structures designed to house and facilitate current and future programs will remain with us for a long time. It is, therefore, of utmost importance that facilities be designed for the maximum amount of flexibility to accommodate unknown future programs.

To appreciate the problems in facilities design, one has only to review the changes in education brought about by evolving teaching methods, implied by terms such as team teaching; mass instruction; small-group instruction; listening centers; learning laboratories; study carrels; electronic classrooms; study shell centers; and audio-visual centers. These innovations have reshaped the learning environment. Where once a school was a large box filled with equal

sized smaller boxes called "classrooms," today the school is encompassing great zones of space which instructors share, or divide into subspaces according to the number of people, the amount of time, and the nature of the learning activity. Educators are clamoring for flexibility of space for auditoriums that can be immediately divided into classrooms and lecture studios, and for classrooms which can, on a moment's notice, be converted to larger or smaller spaces. All of these organizational and physical changes are being made to better accommodate a more stimulating learning environment. There is a growing demand for informal atmosphere, lounge type spaces and furniture for the learner. The time is past when we should tolerate shoe-horning adults into fixed student desks.

If America's attempt to educate everyone to his maximum potential is to become a reality, much more thought and study in-depth is needed in the years ahead. Students today must not only learn at a faster rate than has been acceptable in the past, but they must be stimulated as well as aided by the instructor. Opportunity must be made available for them to recognize not only the school, but also the total environment surrounding the school as a learning laboratory. A society capable of continuous renewal will be one that develops to the fullest its human resources, that removes obstacles to individual fulfillment, that emphasizes education, lifelong learning and self-discovery.

Early in life they must be oriented to the fact that most learning takes place away from the school and from those of us who are employed for the specific purpose of handing down the culture to the next generation. Margaret Mead has said that in a simple society where change is slow, the culture can be handed down economically from parent to child. In periods of rapid change, everyone must learn from everybody else.

It is now only a matter of time and the manipulating of a distribution system when we will see and feel soil from the moon in our local museum or school. To live in the future and to live comfortably and happily, we must know what it is that we, as a nation and a world, really want. We must be willing to use the full resources at our disposal to work for the objectives we want to achieve - be it the conquest of poverty, of ignorance, of hunger, or of disease.

There is growing evidence of the need for welding all education and training more closely. In the early days of our educational experience, mastering the three R's was the goal. This accomplishment was usually scheduled to be completed to some degree of satisfaction over a period of eight years. Since then we have been adding to both ends of an eight-year span by initiating and financing nursery and pre-school, as well as high school, and special training of every conceivable variety, including vocational education.

At the beginning, it would have been easier to have planned for an orderly education system that would have recognized the dignity and educational needs of everyone regardless of color or creed. But the stories of the cow jumping over the moon were no more fantastic than the Buck Rogers stories that followed a few years later and today the moon landing has become a reality.

SECTION II

VOCATIONAL EDUCATION FROM THE VIEWPOINT OF THE NATIONAL ADVISORY COUNCIL ON VOCATIONAL EDUCATION

The Characteristics of this Changing Age In our Vocational Education

Dr. Luis M. Morton, Jr.

President, Central Texas College

Thank you very much. Dr. Hardwick, ladies and gentlemen, it is my pleasure to bring to you today a few simple concepts which carry absolutely no endorsement by the National Advisory Council on Vocational Education. In fact, it is highly doubtful that many educators would take what I have to say seriously. However, regardless of what the educators may think or not think, I have confidence that those who know the least about professional education will agree with me.

Standing in that confident position, I will proceed to read to you my personal opinions, and nothing more. May I say that the first one up in these programs usually plays the role of Boogy Man. By the time Al Riendeau's part is presented, things will begin to look better. In any case, the sub-topic of my little presentation is "The Characteristics of this Changing Age in our Vocational Education."

The position of this country in world leadership, as well as the economic wealth and standard of living which many in this nation enjoy, in many respects has been generated by the inventive genius of this country's individual citizens and their ability to convert these talents to applied science, which is commonly known as technology. Thus, the characteristics of the present day in many respects resemble many of those of previous eras, with at least one exception. This primary exception would seem to be that if this country is to retain its position of leadership...if this country is to provide the gross national product whereby an acceptable standard of living is available to all of its citizens, and if we are to continue to progress in solving the problems of space-age science, air and water pollution, and other problems dealing with the ecology of our nation, we must re-examine the outlook of the institutions and educational systems which each of us represents.

To review the accomplishments and progress of various technological, vocational and occupational education programs of the past and their contribution to the present status of this country...to reflect on the sources of funds which have supported these programs, and to point out the strengths and weaknesses of these programs, however excellent or deficient they are, is tantamount to living in the past, in a past that has peeled away like an old label in the last few years. To be very candid and quite blunt, none of us in the educational community can afford any of these luxuries. The honeymoon with the American public is over. During the past ten years, from the time when the public opinion generated by sputnik propelled us toward emphasis on all educational programs, virtually anything done in the name of education was proper. Now, the level of

productivity at each of our institutions, the lack of efficiency with which we operate, and our indecisiveness which has allowed disruptive activities to interfere with the educational process at all levels, has had a disenchanting effect on the legislatures of our various states, the Congress of the United States, and the nation as a whole.

I would remind you of a presentation by Mr. George Klinkhammer of the Bureau of Education for the Handicapped in which he told the National Advisory Council for Vocational Education that "The problem was not in lack of funds for training handicapped persons, but rather lack of coordination." This is but one example of the preponderance of evidence that any objective person could gather regarding the lack of involvement in productive programs whereby the total resources made available for education and training could be brought to bear on the problems of the country.

What I am saying, ladies and gentlemen, is that there are a number of problems in education today, many of which will not be solved by money. We as educators may blame public apathy toward education and specifically technical, vocational and occupational training, inadequate funding of these programs, the bureaucratic sag which we have allowed to come into being because of our own lack of unity, and a long list of other items as excuses which have hampered us in discharging the responsibilities assigned us by our constituents, whether they be local, state, or national in nature.

However, two salient facts still stand out. These are (1) it is very difficult to solve a problem of which you are a part, and (2) each time a void in training and education has developed, some other source has moved to fill that void. Again, to be candid, our "slip is beginning to show," and if we are to survive the twentieth century as educators, it is up to us to find the answers. In short, it is time to either paint or get off the ladder.

The public, including business and industry, and now national, state, and local governments, is pleading for solutions to problems of applied science or technology which are available only through technical, vocational, or occupational training. Colleges and universities, business and industry in this country may generate new and innovative ideas, new and advanced scientific break-throughs, theories that will assist us in solving the problems of today's society. The applied sciences, or as some would prefer to call it, "Applications Technology," necessary to bridge the gap between theory and implementation is ours to deal with and to solve. Conversion of theory, innovative thinking, and innovative scientific advances, and the training of persons to implement these systems generated by our graduate institutions, business, and industry are our problems to solve. Should we fail to find the capability to deal with these problems effectively in the next few years, I will assure you that the twenty-first century indeed will belong to someone else.

The answer to this dilemma is not in searching for new adaptations in the patterns of administration, but in a complete redesign of the present system, in which motivation and competition (must) be prime factors. In addition, a complete information system regarding the programs which we administer must be

available at the local, state, and national level to all aspects of government, business and industry, and labor. If we are allowed the privilege of glimpsing at the twenty-first century, the state of the art will be involvement, cooperation, and implementation. If we allow the educational system to withdraw into an ivory tower governed by pedantic educators, affected and impressed by their own thoughts and deeds, it is quite possible we will not even see 1980 in a role of leadership.

Having defined the problem, I should now turn it over to someone else, since as an educator, I am normally classified as an "idea" person, and, therefore, should not expose myself to the details of the matter, or the possibility of getting my own hands dirty. Consequently, one might think this is an appropriate place for this speech to end.

Realistically, none of us desires this approach, and I am certain that you would be the first to agree that the responsibilities and problems at hand should be addressed by the educational community and prove to all parties that we are, indeed, capable of implementing the techniques we teach.

What are we talking about when we say "redesign?" Simply stated, it is reorienting the present system with three basic principles as objectives, whether the problems faced be addressed at the local, state, or national levels. These are:

(1) A system for technical, vocational and occupational training based on performance must be established -- a measurable performance.

(2) Involvement in technical, vocational and occupational activities which will generate jobs and economic growth for the geographic areas to be served must be an integral part of the system.

(3) A cooperative program must be established to train and retrain personnel in all areas, be they handicapped persons, disadvantaged or deprived persons, high school graduates, or college graduates.

This is our responsibility. Others are trying some aspects of these three principles, and even building a delivery system -- we already have one (history, law, continuity) -- all we need is a new motivation.

As to motivation, we must at all levels introduce new methods of handling vocational, technical and occupational training programs in a manner whereby minimum costs will be realized. This must include a system of funding based on actual production, or students trained. New training techniques utilizing computer assisted instruction, communications media and television, just to mention a few, must allow us to teach more students more effectively while retaining a "satisfied customer." The days of adding frills just because they are nice to have are gone.

We must face our competition, or better yet, meet it head on. Otherwise, private business, trade schools and organized labor will, and rightfully should,

replace us in the educational system. Competition among institutions and among programs must be eliminated except where, as in the private enterprise system, it tends to produce a more effective and more efficient program. Cooperative programs with business and industry which tend to reduce the capital investment for a specialized program should be implemented where feasible and practical. The educational institutions which are publicly supported have too long enjoyed the luxury of a monopolistic position in this industry. It is our job to compete more effectively with other training programs offered by the private business and labor sectors, whereby training costs are kept to a minimum and the public interest is served.

Information systems must be established whereby we obtain a picture at any given time of what we look like. Today's information systems about these programs are in most cases inadequate or non-existent. Such management tools as cost per contact hour, teacher-student ratios, and job placement data are unavailable. Data, both as to students and as to dollar expenditures, must be input into automated data retrieval systems, whereby, at the local, state, or national levels, the profile of vocational, technical and occupational training can be determined at any time. It is essential that the "now status" of these training programs be available to business, industry and labor in order that the trained product, a productive labor force, its capabilities and availability, both in terms of time and geographic area, can be input into the national economy as it is trained. The unforgiveable "no-no" must be to train a student who, because of the type of training given or lack of capability on the part of the institution training him, cannot be placed in a job. The days of training a student, presenting him a certificate, shaking his hand and saying "lots of luck" are gone. Through effective utilization of information systems, the type of training, the extent of training and, if you will, the exact twist that the training program should take, must be identified while the student is receiving this instruction, thereby making job placement automatic and immediate upon completion of the program. Only through effective utilization of a well-devised straightforward data information and retrieval system can these objectives be accomplished.

Please do not misconstrue these remarks as being those of one who advocates abandoning all aspects of the present system of vocational, technical and occupational training. What is advocated is reorienting the present system, since the system of funding, the flow of funds, and state involvement through the State and National Advisory Council System is working effectively. Essential in the redesigned system is funding based on measurable performance and auditable enrollments based on a uniform reporting system; effective, efficient, and innovative methods of teaching based on actual contact hour costs; administrative involvement whereby the requirements of business, industry, labor, and state and local governments are met. In addition, an information retrieval system whereby we can define the system of vocational, technical and occupational training at any time for any geographic area is vitally needed.

The implementation of redesigning, motivating, competing and adapting our programs to an information retrieval system will certainly demand the patience, creativeness and understanding of all of us. More than this, however, I am reminded of the comments of the person who was recently appointed to a place of

prominence in the organization in which he was employed. After being on the job one day, he was asked how he liked his new position. His reply was, "After all of the well-wishing, handshaking, congratulations, etc., I find I am confronted with a task which is composed primarily of some nasty old hard work."

This, I suggest, is the primary job which will be required of us if we are to arrive at the twenty-first century as educators.

In other words, ladies and gentlemen:

1. The public is on to us;
2. More production for their money will be demanded;
3. A patchwork of administrative alterations will not provide the answer;
4. Powerful and practical educational forces threaten to consume the remaining vocational flesh on our bones;
5. Only a fundamental redesign will have survival value;
6. The customer (students and the public) must be satisfied;
7. The product must be measurable, both in quality and cost;
8. A uniform (by state) reporting and auditing system must be established;
9. A contact-hour cost by defined course or project must be established;
10. An information system must be developed to support the previous items.

What I have suggested may be controversial, but it is conducive to the art of survival! Furthermore, most of these concepts are presently being tested in at least one state. They are based on state legislation recently passed, and the productive institutions are delighted with the system. The proto-type of the information system, all the way from micro-wave systems to hardware and software packages will be ready for testing this fall. They will be serving the public sector by the end of this calendar year. (May I say that these small advances came from people like yourselves.)

Ladies and gentlemen, this is the beginning of another very long and involved subject. My wife reminded me this morning that after 25 minutes of any of my speeches, people don't continue to wish me well. So thank you very much.

SECTION III

THE ROLE OF EXEMPLARY PROGRAMS IN EDUCATIONAL REFORM

The Role of Exemplary Programs in Educational Reform

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"There comes a time in any learning process that calls for reassessment and reinforcement. It calls for new directions in our methods of teaching, new understanding in our ways of learning, and for fresh emphasis on our basic research . . ." So spoke the President of the United States in his March 3, 1970 message to the Congress on education reform. He suggested that the National Institute of Education would begin "the serious, systematic search for new knowledge needed to make educational opportunity truly equal."

Rarely has education had the opportunity to innovate and to demonstrate promising examples and models on a national scale as it has today. This unusual opportunity is being made possible by the Exemplary Programs and Projects section of the 1968 Amendments to the Vocational Education Act, otherwise referred to as Part D of P. L. 90-576. Its primary purpose in the nation is to encourage and support the development of pilot and demonstration projects which are based on sound research findings, and which promise to improve educational practice. It occurs to me that this part of the Act is especially well suited to meet the challenges posed by President Nixon in his message on education reform.

Clearly, the Congress of the United States intended all along that vocational education should assume a leadership role in the improvement of education. One need only scan the wide array of programs throughout the country designed to prepare students for the world of work to appreciate the impact of this leadership since the passage of the Smith-Hughes Act of 1917. Over the years, however, the employment picture in America has changed; we have progressed from a simple to an exceedingly complex society during the past 50 years. As Dr. MacConnell pointed out last night, much of our work has now become increasingly technical in nature, requiring skills and educational preparation heretofore unknown.

Let us consider for a moment the changes that have come about during the past half century. Man has walked on the moon. Transportation over land and water and in the air has reached phenomenal speeds. Instant visual and oral communications are worldwide with the help of a telestar. Surgeons are replacing worn out human body parts much as the mechanic replaces worn out parts in the family car.

These and other changes have been occuring at such an astonishing rate that adjustment by individuals has been a problem. But there is a general feeling that this adjustment problem has not been bothering educators as much as it should. We still hear talk about holding the line and not getting excited about "innovation and those new fangled ideas in our schools." Such effort to preserve the status quo can be likened to the efforts of the master sergeant in the play *No Time for Sergeants*. He was counseling a new recruit from the hill country: "Look here, soldier, the Army is like a lake. On it there are many canoes. You're in one canoe, I'm in another. The colonel is in still another. When you start rocking your canoe, it creates waves. Those waves rock all the other canoes on the lake. Now stop rocking your damn canoe."

Exemplary Programs should probably be designed deliberately to create waves. By incorporating the most promising educational research findings into a pilot program, and selecting an operational setting not unlike other educational settings found in that district, our hope is that somehow the good ideas will find their way into the school system.

Part D - Exemplary Programs and Projects

During the early sixties, an aroused Congress provided new educational legislation, among which was the Vocational Education Act of 1963 (P. L. 88-210). While this Act made possible many educational improvements in the United States, the 90th Congress saw fit to include features in the Vocational Education Amendments of 1968 which would make education more readily responsive to change.

At the risk of exposing a personal bias, I want to state that one of the most exciting features of the 1968 Act (P. L. 90-576) in my opinion is Part D, Exemplary Programs and Projects. Under Part D, vocational education has been given a free hand to design innovative and creative programs which have an impact on the entire system of education. That the Congress intended this part of the law to be comprehensive, there can be no doubt, as witness the following provisions:

The scope of Exemplary Programs and Projects can include orientation and exploration, development of work habits and attitudes, acquisition of job skills, and the improvement of teacher competencies.

The focus of such programs includes all students, but special emphasis must be given to noncollege bound youth and more particularly to youths with academic, socioeconomic, or other handicaps. Exemplary Programs and Projects can be established at all levels of education -- elementary, junior high, senior high, and postsecondary -- and may be directed to both in-school and out-of-school youth.

The setting may remain within the confines of the school or may extend beyond to other community agencies and institutions.

The Congressional Record carried much testimony during 1967-68 from a wide variety of influential sources, most of which supported the concept that education could and should do a better job of providing meaningful school experiences for all youth. And as Part D was hammered into shape by a deeply committed and farsighted Education Committee, the magnitude of this new legislation began to unfold. The report by the House Committee on Education and Labor in 1968 reads, in part:

> ". . . The General Subcommittee on Education has concluded that the following five ideas recommended by the Advisory Council (on Vocational Education) deserve serious consideration: 1. any dichotomy between academic education and vocational education is outmoded; 2. developing attitudes, basic educational skills and habits are as important as skill training; 3. prevocational orientation is necessary to introduce pupils to the world of work and provide motivation; 4. meaningful career choices are a legitimate concern of vocational education; 5. vocational programs should be developmental, not terminal, providing maximum options for students to go on to college, pursue postsecondary vocational and technical training, or find employment."

To accomplish this, the Congress authorized a budget calling for $57.5 million for Fiscal Year 1970, and $75 million for each of the next two years for Exemplary Programs and Projects. But for a variety of reasons, not the least of which was our involvement in a costly war in Southeast Asia and the need for supporting other high-priority domestic programs at home, the Congress appropriated $13 million for 1970, and the agreed upon figure for Fiscal Year 1971 has not yet been determined.

Section 142(d) - State's Share

Fifty percent of the funds appropriated under Part D of the Vocational Education Amendments is granted to local education agencies and to private and nonprofit agencies by the State Boards of education, while the other fifty percent is administered by the Commissioner of Education. The manner in which the states choose to develop and support Exemplary Programs with their share of Part D funds is spelled out in their annual State Plans. A great variety of projects and plans have been reported by the states, ranging from fragmentation of state allotments into $500 projects for individual teacher in-service programs, which includes travel for program visitation, to the lumping together of the entire state allocation with the Commissioner's share, making one large Exemplary Program. Whatever the arrangement, the choice is left to the State Boards.

Section 142(c) - Commissioner's Share

While the intent of the Congress was clearly that Part D would provide opportunities for innovating and field testing of new and improved ideas and practices, it soon became apparent to the Commissioner of Education that the $6.5 million

Federal share for Fiscal Year 1970 would soon be lost in the shuffle unless guidelines were followed. The Policy Paper AVL-V70-1, dated October 2, 1969, pinpointed the priorities set by the Office of Education for Exemplary Programs and Projects which were supported by 1970 funds. In order to achieve maximum impact, the entire $6.5 million allocation was focused on programs or projects which combined, in one operational setting, all of the following provisions:

1. Provision for broad occupational orientation at the elementary and secondary school levels so as to increase student awareness of the range of options open to them in the world of work.

2. Provision for work experience, cooperative education and similar programs, making possible a wide variety of offerings in many occupational areas.

3. Provision for students not previously enrolled in vocational programs to receive specific training in job entry skills just prior to the time they leave the school. (Some of these training programs might be very intensive and of short duration.)

4. Provision for intensive occupational guidance and counseling during the last years of school and for initial placement of all students at the completion of their schooling. (Placement might be in a job or in postsecondary occupational training. Placement should be accomplished in cooperation with appropriate employment services, manpower agencies, etc.)

5. Provision for the grantee or contractor to carry the program on with support from regular funding sources after termination of the Federal assistance under Part D of P. L. 90-576, since Federal assistance under Part D cannot exceed three years.

The first four provisions call for the development of strategies which will have impact upon educational areas generally considered weak in our schools. The fifth provision carries with it the hope that a good program will somehow be continued.

Pilot and Demonstration Branch Status Report

The major goal for which we strive in the Pilot and Demonstration Branch is the development of one Exemplary Project in each of the 56 states and outlying areas which will be supported by Section 142(c) funds. While it was hoped that the entire Federal allotment could be obligated by July 1970, in order to provide "tool-up" time for operation of the project when the regular school year started in September, there were several reasons why this did not occur in all states. One of the reasons was the late start we got due to delayed appropriations at the Federal level.

The Pilot and Demonstration Branch received 168 project proposals for processing, returned 58 as nonfundable after an in-house review, then sent out 110 to be read and rated by a National Review Board. Each proposal was read and rated by no fewer than five people. Based on these ratings, selections of the most promising projects were made on the basis of one for each state. As of July 16, twenty-nine projects calling for the entire state allocation of the Federal share of Part D had been recommended for funding by the Associate Commissioner for Adult, Vocational, and Technical Education. Several proposals are in various stages of review and processing, while a few states have yet to produce an acceptable proposal. Since the Fiscal Year 1970 funds were "no year monies" there was no pressure to develop and fund a project in all states by June 30. We are fully aware that the January 1 cutoff date was unfortunately short, and the quality of the early proposals reflected the lack of sufficient preparation time.

New starts were caused for one of two reasons: (1) All projects submitted by the January 1, 1970 deadline from a state were disapproved by the Review Board, therefore calling for new projects to be submitted by a new deadline set by the Associate Commissioner, or (2) The state happened to be where one of the sixteen high priority Model Cities was located, and where, by order of the Secretary of Health, Education and Welfare, special efforts were directed to generate and develop an Exemplary Project.

In its effort to attract top quality proposals, the Pilot and Demonstration Branch relied heavily upon each of the nine O. E. Regional Offices, the Research Coordinating Units, and the offices of state directors of vocational education in each state. Much of the credit for getting proposals written in a few short weeks, which included the Christmas vacation, was due largely to the splendid *esprit de corps* which existed among these educational leaders.

When the January 1 deadline was officially waived for the sixteen designated Model Cities projects, one can well imagine that this did not go unnoticed. There was consternation about "rule-changing," and some complained that special favors were being accorded certain groups. The flood of letters, telegrams, and telephone calls from the states, as well as from some congressmen, was ample proof that Part D had its own watch dog committee. But let me hasten to say that none of these messages were of the nasty variety; they were more in the form of "how come" inquiries by concerned leaders.

While we in the Pilot and Demonstration Branch should confess that we were as surprised as you with the order that directed the focus on sixteen high priority Model Cities, it has since occurred to us that there are some advantages to such an arrangement. Much can be learned, for example, by developing Exemplary Program models that join forces with such agencies as: Follow Through; Teacher Corps; Talent Search; Higher Education Special Services; Higher Education Comprehensive Planning; Adult Basic Education; and the Handicapped Early Childhood. So now in at least sixteen states, an Exemplary Project funded under Section 142(c) will join forces with several agencies to press forward a massive frontal attack on inner-city problems.

If we added to the Model Cities effort the H.E.W. input of Health, Social Rehabilitation and Welfare, the impact on socially and economically blighted cities could indeed be formidable. Such a coordinated effort was recently described by Dr. A. Neal Shedd, Urban Education and Community Services Program, as "having the capacity to produce an extraordinary voluminous orchestration of effort." We were impressed by that statement too.

As was pointed out earlier, a wide variety of plans for using the Federal share of Part D funds are represented in the 56 states and territories. To date, seven have chosen to combine the state's half with the Commissioner's share, giving the project a broader financial base. The seven are Arkansas, District of Columbia, Florida, Georgia, Kansas, Mississippi, and New Jersey. The Exemplary Projects approved for funding, which are also linking up with other agencies under the aegis of Model Cities, are located in Boston, Pittsburgh, Huntsville (Alabama), Pikeville (Kentucky), New Orleans, and Honolulu. In general, these Exemplary Projects are examples of local efforts to improve educational outputs in some way by attempting something that would not otherwise be possible without Federal support.

Some Examples of Exemplary Projects

From among the approved projects to be funded under provisions of Section 142(c), the Commissioner's share, the following are briefly described:

1. Colorado -- The Aims Junior College District, formally approved in the state as an area vocational school, will provide among the several exemplary components, peer counseling for disadvantaged Mexican-American students who are potential or actual dropouts from the secondary schools. The plan calls for working with the entire family unit, with special efforts to be aimed at working with the father. Individual learning packages and intensive tutorial assistance will be provided these students.

2. Massachusetts -- The New Urban League of Greater Boston, Inc., will implement the Exemplary Program through the use of a Continuing Education Center. Unique among the activities at the Center will be the advocate and Black exemplar roles to be played by counselors. The focus is on inner-city people, mostly Blacks. Incorporated into the design of the Boston project are the development of minority exemplars, occupational information, attitudinal change, parental involvement, skill training and task analysis. This Exemplary Program reflects an effort on the part of a nonpublic sector group to provide realistic innovative action in education to meet a serious need.

3. Virginia -- Called the DILENOWISCO Four I's Project (for Intervention, Introduction, Investigation, and Involvement), the applicant agency is a consortium of five local school divisions headquartered in Wise, Virginia. Located in an area of high unemployment, the program is designed to intervene in the lives of a selected group of youths by introducing them to a broad range of occupational information; by making

it possible for them to investigate several occupational areas, they will become involved in actual work and learning experiences. The target is largely potential dropouts.

4. Nevada -- The Washoe County School District, with offices in Reno, developed an Exemplary Project which introduces new elements of vocational education at the elementary, secondary, and postsecondary levels and combines them with existing elements to form a smooth, sequential program. The new elements are occupational orientation at the elementary and junior high levels, and a heavy concentration of counseling, and job orientation and placement at the high school level. A health occupations curriculum at the senior high school level is being tried in this program also.

5. Pennsylvania -- The Pittsburgh Public Schools will, for the seventh and eighth grade orientation program, utilize the facilities of a renovated elementary school. Students will be rotated for career orientation and exploration. With a centralized location for occupational orientation, the Pittsburg School District feels it can provide a greater variety of materials and equipment as well as keep them current at a more reasonable cost.

The Exemplary Projects described above will give you an idea of the wide range of options permitted and, in fact, encouraged under Part D. Within a few months it is anticipated that descriptive materials will be available, in either hard copy or microfilm through the ERIC System, on most of these projects.

In a recent report to the American Vocational Association, Governor Buford Ellington of Tennessee said: "More important than citing numbers of students or dollars invested is the fact that our educational system stresses quality." Based upon the proposals for exemplary funds which we have received from all sections of the country during the past several months, I would say that educators are most anxious to do just that -- improve the quality of education.

Dissemination and Utilization of Knowledge

One of the objectives of our mission is to share with other educators some of the findings which seem particularly significant for educational improvement. Plans for dissemination and utilization of the findings of exemplary programs, which are themselves based upon solid research, are being carefully considered at the National level by U. S. Office of Education officials. They are aware that some ideas can be implemented simply by administrative decisions. But educational innovation, in order to be implemented, frequently involves new skills, new attitudes, careful planning concerning supporting roles, and changes in values. The problems implied here are often beyond the capability of the school system's own personnel to handle without extensive outside help.

There is nothing new about the statement that a lag does, in fact, exist between modern technology and the traditional classroom. How wide this gap might be is not so important as what educators are doing to close it. The task we face is how to mobilize the accumulated knowledge for use by schools in the most effective and strategic way.

The development of operative mechanisms for linking the findings of Exemplary Programs and Projects to widespread practice in our schools about the country has raised a host of questions for us lately. Realizing full well the importance of getting off to a good start, we have called on such experts as Dr. Lee Burchinal and Mr. Thomas Clemens of the National Center for Educational Communication to help us map out a plan. Since the directors and coordinators of Exemplary Programs about the country will all be actively participating as senders and receivers of information for this plan, there will be more on it later.

Our studies of dissemination and utilization of knowledge have convinced us that change doesn't just happen in our schools; it must be organized -- by people. It must be planned by people who are skilled in all aspects of planning for improvement. Since change usually creates conflict within a school and community, the idea of improvement must be sold to many people, often on an individualized basis.

If this new effort known as Exemplary Programs and Projects is to have impact upon the populations targeted by the Congress when they write Part D of the Act, namely the youngsters in elementary, high school, and community colleges, and especially the disadvantaged and handicapped, they will require a special kind of educational leadership. The one who heads up the elementary programs will have been carefully selected -- he really should be the kind who can walk on water and if he doesn't know how, he'd better learn! For the successful director or coordinator will have interaction with learners, with teachers, with parents, with school boards, and with the leaders of the community. He will identify the kinds of activities which promote educational improvement, then go about the task of implementing them on a pilot basis.

As plans are made for bringing about change in a school, the following may serve as guideposts:

1. Get to know the principal or chief administrator of the school. He may need to be motivated, but since he is the prime influence on attitudes regarding the acceptance or rejection of innovation, he is the key agent of change in his school.

2. Develop a systematic, organized approach to adoption of innovation; avoid random adoptions amid fanfare and publicity -- out of consideration for staff morale.

3. Develop an information system for providing a continuous flow of new ideas and new educational products into the school. Be prepared to suggest ways of providing specific training as necessary for updating the capabilities of teachers to cope with these new ideas and products.

4. Above all, maintain an open mind about educational innovation. One instructional method may not necessarily be best for all learners.

It might also be well to remember that school systems have two characteristics regarding changes: (1) the tendency to maintain themselves in balance, or in a state of equilibrium, and (2) the tendency by people in the system to resist change. While this hesitancy to accept change has been the subject of much criticism in the past, let us be reminded of the school's function as a social institution. As a reflection of a comparatively stable society for over two centuries, it has resisted attempts at restructuring and has remained stable. This is the way our great school system was designed. But there are times when the need for adopting new ideas by schools somehow seems most important -- and perhaps that time has come. The Exemplary Programs and Projects on a pilot and demonstration basis appears to be one of the most promising strategies for bringing about planned change. Such a program can create a temporary new system which will demonstrate new ideas and innovations in education. When educators study promising exemplary programs, they frequently become their own change agents!

I wish to close by reminding you that any discussion of the topic "Resistance to Change" should stress the importance of good salesmanship -- the ability to explain matters in understandable terms.

Major John Lindsay of New York tells about a factory owner with one hundred fifty-one employees, who proposed a profit-sharing plan -- provided every employee signified his approval in writing. One hundred fifty men signed immediately, but one refused, balking the entire project. For two weeks the holdout persisted, then one day he marched into the boss's office and declared meekly, "I've decided to sign." "Good," said the boss, "but what finally changed your mind?" Explained the maverick: "This morning the two huskiest members of the union grabbed me by the collar and told me, 'If you haven't signed up by 10:30 this morning, we'll break both your arms, both your legs, and we'll knock out all your teeth.' Well, Boss, nobody had ever bothered to explain the plan to me so clearly before."

SECTION IV

THE IMPORTANCE OF ACCOUNTABILITY

FOR EXEMPLARY VOCATIONAL EDUCATION PROGRAMS

THE IMPORTANCE OF ACCOUNTABILITY FOR EXEMPLARY PROGRAMS

Dr. Leon Lessenger

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This word "accountability" shows all the signs of becoming what Don Davis calls an "in" word, supplanting "relevancy." And I expect he's right. I also suspect therein lies the danger, because accountability is one of those concepts with a rich history in the business sector, and if we in education bastardize it, we are going to end up with few alternatives, and we have precious few alternatives to fool around with.

I hope to be serious about accountability and show how it is now being defined. It (accountability) is presently not anything; rather, it is in the state of becoming. There are several tentative definitions I could give you, including my own. Let me try to share with you the flavor of the concept of accountability and try to show its implications for exemplary vocational education programs.

I was impressed with Dr. MacConnell's talk last night and I think you will find that much of what I have to say will fit in with some of those pecks that he provided for us, both in a humorous and in a sober mood.

The recent near tragedy in space brought the entire nation a lesson in American courage and ingenuity. This is only the latest in a long series of lessons being beamed into our homes from these very unusual classrooms. Regardless of the nature of the lessons, be it the effects of weightlessness, or a vision of the sheer beauty of the earth, we are privileged to see both instruction and management of a very high order in operation. The level of technology, the allocation of resources, the skillful bringing together of men, materials, ideas, and environments all explain why it is possible to hold those in our space effort accountable for results. In my judgement, this lesson in accountability may yet turn out to be the most important contribution of the space effort to us in education. Let me defend that. A growing number of influential people are becoming convinced that we can't hold the schools accountable as we hold other important agencies accountable, both in public and private sectors. Yet, in his March 3 education message, President Nixon stated, and I quote, "*From these considerations, we derive another new concept. Accountability. School administrators and teachers alike are responsible for their performance, and it is in their interest as well as in the interest of their pupils that they be held accountable.*" I could cite for you many other pronouncements, and later I will cite another from the New York Teacher's Union.

I want to tell you that Jack Davis is very persuasive. I really had other things in mind for this week, but knowing who you were and what the program was, I decided I wanted to be here.

I could give you other statements regarding accountability like the President's, from many quarters. For instance, as I've gone around the country, I have been impressed by people in general (usually they are State Board members, legislators, governors, and other people in those ranges) and I find that they will usually say, "But of course, teachers and administrators will fight this concept (of accountability)." And it is the "of course" that bothers me. I'm not finding such teachers and administrators. Instead, I'm finding educators who say "How do we go about this?" As a result, I hope that most of my remarks will be in a positive direction, giving positive ideas which might be applied in your programs.

I have chosen a quote to sort of balance the President's statement. The preamble to the agreement between the Board of Education of the City of New York and the City Federation of Teachers for the current period (that is, their two-year contract) says, *"The Board of Education and the Union recognize that the major problem of our school system is the failure to educate all, all our students, and the massive academic retardation which exists, especially among minority group students; the Board and the Union therefore agree to join in an effort in cooperation with universities, community school boards and parent-teacher organizations to seek a solution to this major problem and to develop objective criteria of professional accountability."*

Now while they speak of massive academic retardation, I would share with you some figures former-Commissioner Allen gave us just a few months ago. He indicated that while the budget in New York, the per pupil allocation from 1960 to 1967, has been doubled, the achievement of the children as measured on standardized reading tests has been cut in half. There are all kinds of reasons we can give for this kind of phenomenon and incidentally, it is rather typical in many places.

Even though the Union speaks about academic retardation, I would also like to share with you a report that was just filed in this state by Arthur D. Little. This report is a $400 thousand study of vocational education. In my judgement, it ought to he mandatory reading. They discovered in this state, one of the most advanced states in education by any common criteria you wish to employ, that one-third of the youngsters in this state can be classified as "flying dutchmen." Now who are the "flying dutchmen?" You know who they are. They are the youngsters for whom there is no curriculum. Neither the academic teachers nor the vocational teachers want these children. They are the children to whom we give something called general education, an education for which there is no description and only professional shame. So even though the preamble talks about academic retardation, it could be supplemented in a lot of ways.

Many more pronouncements and program activities of the sort of those quoted above from key groups and important decision-makers could be added. Examples might be the recent developments by state governments in Oregon and Virginia. The State of Virginia's Board of Education has requested or authorized or encouraged the use of the Title I funds through performance contracts to achieve accountability. The

State of Oregon, among other things, has employed Ray Osborne, Jr. as Director of Educational Audits. OEO, last week, announced the granting of $5.4 million dollars to eighteen centers in our country, from McComb, Mississippi to Anchorage, Alaska, from Philadelphia to Athens, Georgia, and to other places all over the country, to replicate and to enhance the Texarkana study and to look at other incentives in education. I could go on. I could talk about the State of Florida, the State of New Jersey, the movements in New York. Clearly, a new educational movement is on the way. We are entering the age of accountability in education.

The Commission of the States met this month, July 8, in Denver. The Commission of the States is a group consisting of governors, members of the state legislatures, and chief state school officers. The theme of that conference, at which the national assessment figures were released, was "Accountability." They have said that their fundamental purpose in the 1970's is to pursue accountability. Clearly we <u>are</u> entering an age of accountability.

What is accountability all about? In my judgement, the call for accountability in education is a summons to review and reform the educational system. It is not another concept; it is not team teaching or flexible scheduling. It did not come from our profession; it came from our clients. I want to give you my definition in a moment, as well as one or two others which I think are better. Make no mistake about it, accountability is not a nice word, it's a tough word; and I would be the first to admit that I don't want to be accountable. And yet I would admit that it has to be done. I give you a definition from a black parent in the Bronx who came to the Office of Education and I was trying to explain some programs that she, along with other parents, was not happy with. After my feeble explanation, she said, *"I know what accountability is; if you don't learn my child, I'm going to fire you."* And the Superintendent of Kentucky, last week at a conference at Stone Mountain in Georgia with six southern states pursuing the problem of accountability said, *"I know what accountability is. It's when you go for money and they ask you what did you do with that money."* So let us not confuse accountability with evaluation, assessment or anything else. It is a public policy declaration by the client, by the consumer, by the people for whom we work, for whom we are stewards to account, to answer for, in a regular way, our stewardship of those funds devoted to educating young people.

In my judgement though, the concept rests on three foundations. I would like to use these foundations as the framework within which to talk about exemplary programs. These foundations of accountability have been introduced into projects relating to Titles VII and VIII. They are now in practice in some eighty-six projects around the country having to do with the dropout and bi-lingual problems. In these projects, there are eighty-six educational accomplishment auditors on the job. They are not all independent, that is to say, they are not all different auditors. Some are working on more than one project. It is evident that these principles of accountability are being pursued in the dropout and bi-lingual programs and that these principles regarding accountability are being continued even in my absence.

These three foundations are:

First, demonstrated student learning. The focus is on the product, on the outcome, on what kids can do as the result of the expenditure of funds and the labor of dedicated people.

Second, these results must be seen through the eyes of someone who is independent of the people producing them. These results in children must be able to be replicated by someone qualified, an outside reviewer, an independent auditor.

Third, and finally, these results - student accomplishments - as seen through the eyes of someone other than the people producing these accomplishments, must be reported to the public. It is a public report, which is to say that we who are in education are responsible and accountable to the public. We must begin to develop data and information which can be understood by the public.

None of this is new to you, but the implementation of such a concept as pronounced by a Congress or a state legislature or a school board is what accountability is all about. I think these pillars can fundamentally alter education and vocational education. I would like to indicate some of the more important of these alterations.

In the first place, emphasis will shift from teaching to learning. Research literature points up the independence of teaching and learning. There can be teaching without learning and learning without teaching. And the teacher who says, "How proud I am, I flunked 40%" is apt to be met with the answer "Then who needs you?" And the teacher who says, "I have very high standards, nobody gets through my class" is apt to be met by the statement, "What are your standards, can someone else apply those standards? And if you increase your revenue each year, will your standards be such that more and more students will be achieving?" There can be teaching without learning, learning without teaching. It is not necessarily true that teaching results in learning. There can, of course, be learning as a result of teaching, hopefully, and I know places where this occurs. So independent is this relationship between teaching and learning, ladies and gentlemen, that I could cite literature and research indefinitely. It is so prevalent that it is sometimes called the phenomenon of the teaching-learning paradox. This suggests that the present and traditional methods of requesting resources as well as the principal bases for judging the quality of schools will undergo drastic change. In place of equating equality in terms of resources allocated (teachers, space and equipment), the criterion will be results (how did the students do, how did you live up to your promises in your proposal?). This will lead to a second by-product of accountability: a revised educational commitment for the nation.

In principle, the American educational commitment is that every child should have access to an adequate education. This is the familiar, the important, the magnificent notion of equal educational opportunity. This commitment has been translated into legislation as you know, including the vocational education legislation. The dollar has been allocated for the people and the things of education, but when a child has filed in to learn, school personnel have often assigned to him a label. You know the labels - slow, uncooperative, unmotivated, disadvantaged, culturally deprived. What a long litany of failures. Accountability would have none of that

and triggers a revised commitment, that every child shall learn. And such a revision demands a "can do" spirit of enterprise, of willingness to change a system which does not work and find one that does. A seeking of causes of failure has often been in terms of the system, its personnel, its organization and its technology. This new commitment to accountability may come to be called the principle of equity of results. Former Commissioner Allen's call for every man's right to read clearly reveals this new commitment.

Another major effect of accountability centers on the technology of instruction, and the notion of "better standard practice" in America's school rooms. Now technology should not be confused with equipment. Technology refers to what works. Technology refers to validated practice, to things that are known to work, and are then used. Let *me* talk a bit about standard practice. I didn't say "standardized practice." When I was a young fellow, I like to think not-so-long-ago, my father was a *medical* doctor. Being the son of a doctor is not an unmixed blessing, because *minor* ailments are treated when they sometimes would be better left alone. When I had a sore throat, *my* father had me in his office, using standard medical practice for treating sore throats. "Standard" meaning what you would find if you went into the doctor's office anywhere around the nation. That standard practice consisted of the following (if it brings back memories, so *much* the better): he would seat you and then he would reach into a jar and bring out a tongue depressor. Then he would look inside your throat after making you say "ah" and he would reach into another jar and get out a little round stick, another piece of equipment. He would then reach into a third jar and get out some cotton and deftly, beautifully, wind it (I used to try to do that but I never could get it to stick) around the stick. He had a jar of argyrol, a black substance, and he dipped the stick and the cotton into the argyrol and, using the tongue depressor, would swab your throat. He even had a little specially made dish to capture his handiwork. Now, it made sense in his time to swab throats because they had learned then that there were germs and they knew about antiseptics. The fact that it didn't have anything to do with the sore throat was unknown to him. The fact that in the future such practice would border on malpractice was unknown to him.

Medicine has changed, and it has ways to change its practice. Why is it that I can step back into my classroom role twenty-two years later and not miss a step? That's back. And where is the concept of standard practice in terms of results? Now doctors in my father's time did not make a lot of money; they were not high on the hog. And their sudden rise in power and fame and monetary advantage (and it is awesome) came about as a result of their ability to produce results. Not because of the American Medical Association, not because of the heavy professionalization, but because the public was convinced that going to a doctor paid off in relief of pain or in curing of disease. There is a lesson for education there, which seems to me inescapable.

I'm going to pick up on my formal remarks in a *moment*, but I want to quickly get into how you can engineer accountability into public education and how you can utilize this notion, this public policy declaration, in the work we do. Remember that there were three critical elements: demonstrated student accomplishment, independently perceived, publicly reported.

There are several ways to go about engineering accountability into public education. There are bad ways, in my judgement, and there are better ways. A bad way is to get up on your hind feet as a speaker or a legislator. This was done when I appeared before a committee in this state. One of the members of that legislature wanted to immediately punish people for what they were allegedly not doing. I am pleased to tell you that this person is in a minority. Most people are willing to work objectively in the direction of accountability.

I think the very first thing we need to talk about is developmental capital. And let me also talk for a moment about patterns of funding. I don't know if you have considered that the Federal Government gets an awful lot of mileage out of a little bit of money. The Federal Government contributes about 5% of the overall elementary and secondary budget, and yet more fuss is made over the 5% than the 95%. In my judgement, it is because the Federal government is using a pattern of funding through grants management and categorical aids.

Now we have developed a whole elaborate technology of grants management. Some of you are members of that technology. You are the Federal project writer, the man responsible for writing and keeping up with all the changes in laws. The trips we make, the lobbying we do as members of professional societies, all of this effort and influence has one objective and that is to make that 5% larger. In my judgement, the allocation of 2 or 3% of the school systems' money as developmental capital, as investments in futures, as risk capital to be managed by professional people, would be one of the best ways to achieve accountability. There is some evidence of this happening. The Texarkana project made use of developmental capital, in this case Title VIII funds. Also, the State of Florida has now passed a developmental capital program. As a school superintendent in San Mateo, I had a school board that was wise enough to set aside 1% of our operating budget as developmental capital. That was one-quarter of a million dollars. In addition, every penny we could raise from federal, state and local sources was put into an account and for several years we were investing $1 million per year in new ventures. We also had an academy of instruction, teachers elected by their own peers who used a mode of proof called hearings. They held hearings on these projects submitted by any teacher or school principal with a hope to do better things that would pay off in results. If you had a developmental capital program, then you would look at your exemplary program in terms of money set aside by the Federal government to be used to achieve certain results.

Let me go through the elements of the process. It seems to me that unless very early in the vocational education program we adopt an educational engineering notion, we are going to go the way of the Title III. Lots of wonderful acronyms will be thought up, lots of wonderful things will happen, lots of things won't happen. And then the program will be in the periphery somewhere. No change and no legacy will develop and there will then be no support from the Congress and others. And if that happens, the program you have ready to launch will not achieve what all of you want it to achieve.

Let me talk for a moment, then, about adapting and adopting, and installing good practice. There are good practices that you know or can design with these monies. We ought not to forever re-discover the wheel and re-make it. There are

things that work, there are professional colleagues of yours and mine who have done fantastic things, but what a tragedy it is to see that there is no spread of these effects. Who was it who said that it takes forty years for things to get into the mainstream? That won't work. Accountability must spread in one year or less. It won't work to do things the same old way.

Now what is this process? It is to locate or design good practice (good practice means those things that cause changes in behavior in children and which you can demonstrate). And once you find that good practice, it needs to be adapted. That's a professional job of the first magnitude. There is a wonderful program called Outward Bound. It's a marvelous program for boys. It takes city kids and country kids and gives them a chance to pit themselves against reality. Not television and not man's reality, but nature's reality. It's a marvelous program, very effective, and it would have awesome effects on our delinquency problem. In the city of Atlanta, the Atlanta school system adapted that program. They did not have the kind of money to take the boys to the Colorado mountains; instead, they took them to some little hills near them in Northern Georgia. They adapted the program and still kept its essence. That's a professional job.

But that has nothing to do with adopting. Adopting is another program. When you talk about adoption, you are talking about political and economical problems that every superintendent knows about, problems that you in vocational education know about. That is a political and social problem. It's a sales job. It's a packaging job. The people who are good at adoption, at getting things adopted, may not be the same ones who know about adaption.

Then there is the whole notion of installation. How many good ideas, adapted and adopted by the board and the staff, fail because the board and the staff do not know even the rudiments of logistical support? I can tell you stories that are shameful - of school systems that bought things that weren't even available, prototypes; - of manufacturers who inflicted their prototypes on a school system and then couldn't deliver; - of school people acting like complete, utter babes in the woods. I can show you beautiful programs on paper and then we can talk with teachers who need six weeks leave time to get the necessary equipment to make it happen. And yet the program says we teach creativity, we want to get that encounter. Nonsense. Accountability, if nothing more, ought to teach professional integrity, which is to be honest. It has all those earmarks of a hairshirt. It's a very unwelcome concept and I hate to be the man talking about it.

In the installation phase, you can begin the process of the turn-key. Unless your exemplary projects have a turn-key feature, don't do them. You will get expectations in your system that you cannot deliver, and you will be a failure. You will have a nice report that nobody in Washington will read and you won't read. It will have all the right jargon which will amount to nothing. What is turn-key? It is an installation beyond the reaches of that project and unless you plan now on what it is to be if you are a success, you will fail. What if your efforts to get Federal money really work? Then what? Oh yes, your board agreed that when they got the money -- but that's a paper agreement. Good intentions to be sure. What are the logistical problems, the training problems? Those have to be addressed in

the turn-key. That's why I'm going to talk about performance contracts as a tool for an exemplary project, not as the way. And so we need to talk about installing and we need to discuss a turn-key operation. We then need to talk about feedback, and how we are going to monitor this thing because we all know that everything in life obeys the second law of thermodynamics. That's a very, very important principle. In corny terms, everything that gets started winds down. No matter how gung-ho you are now, a year from now may be different. And our children are too important to us for us to be off on these binges. How do you keep the system from losing its momentum, its energy? There are ways. They are called incentives. They are changes in the salary schedule, changes in the reward system. This whole contingency-management thing is beginning to show us that you can change these things. But you must be clever and you must provide for it in your program design.

One of the things we discovered in our pursuit of accountability was that we must utilize a set of tools. My big worry is that the tools become the end and not the means. These tools are not accountability. Accountability is a public policy declaration. Tools are instruments by which professional people or others can hope to achieve accountability. Here are some examples of tools - they go under the usual alphabet: MSG, RFP, performance contracts and bids.

Let me tell you a little bit about these tools, for they may have some applicability. We discovered in trying to administer Title VII and VIII that school districts did not have the in-house competence to do fundamental jobs. It has to be recognized that we in education don't know everything. We should not try to be everything to everyone. We must also recognize that there are technical competencies which we do not have. There are also things asked of us in education that we can't deliver. It is important for us to distinguish between education and training. Instead of talking about good guys and bad guys, we had better talk about burdens and capabilities.

I heard a Congressional committee being given information from the secretary's office, information which said that teachers tend to come from the lowest one-fourth of the academic aptitude sector. What does that mean? That's the old business of good guys and bad guys. That's the same conversation you used to hear, and still do, where teachers gather and they talk about this year's vintage of youngsters - they're good and last year's are bad. That type of thinking goes clear back to Aristotle: that goodness and badness are inherent in the substance. That's nonsense. It's utter rot and ought to be exposed for what it is. You notice that goodness is never defined.

Let's say you select a good teacher. You know how you select a good teacher. A teacher is defined rigorously as a "good teacher" if he is trustworthy, helpful, friendly, courteous, kind, cheerful, brave, reverent, and obedient. How much better it would be to talk about teachers in terms of burdens and capabilities. What are the burdens in the 1970's (what are we asked to do?); and what are our competencies, our capacities, and our capabilities? How can we acquire those talents we have to have? Isn't this what we should be talking about instead of good guys and bad guys?

Within that context then, one of the things we need to achieve is the ability to describe, as rigorously as we can, the things we are trying to do. The very first thing we must decide is "what are we trying to make or do?" What do we want young people to be able to do as a result of the expenditure of our money? When we describe what we want to do, can somebody else equally intelligent, equally adept, but outside ourselves, be called in to do these things? If we set up the proper conditions, children will perform to specifications and to standards. You can then describe your accomplishments in terms ordinary people will understand.

Let me tell you about that word "ordinary." Ordinary, these days (thanks to the great achievement of the public school system), isn't ordinary. Dr. MacConnell said this very beautifully. I was asked two years ago to talk to an entire state legislature on accountability and the questions they leveled at me were fantastic. I turned to the fellow next to me and I said "You have some state legislature". And he told me that 90% of them had a college degree. Some of them were attorneys, some were engineers, and some were teachers. They had come through our educational system. Our system hasn't done a bad job for some kids--it's those flying dutchmen, the other 80%, the group in which you are interested, that have been neglected and by-passed in some places. So it seems to me that we have to be able to describe what it is we are trying to do. Once we have described it, we've got to then begin to talk about professional honesty, the toughest topic of all.

I am impressed with school publications. I used to read school publications; I don't anymore. They are all the same. Everything is great. I don't care what school system it is, in print it has only success. The kids are happy, there is always a smiling face. Yet I have noticed there is a correlation between the degree of happiness displayed in the journals and the failures in tax and bond issues. Somehow, the best systems on paper are the ones that don't seem to have public support. Whoever was responsible for that approach to public relations needs to go home. And if you think I'm kidding, try to go before any committee of Congress with the following testimoney, which was very common in '65, '66 and '67: "Give us more money and we will give you a quality program." Just try that. I'm not responsible for what will happen.

How do we acquire capability and what are some ways a school system can acquire capability? Well, obviously, training and going to conferences are acceptable, but rather overused, methods. We have to come up with some other tools and I would like to share them with you for they may be useful.

One tool is referred to as the management support group. You've always used consultants, as we always have. This tool, however, involves a special kind of function where a school system reaches out for people to help them translate their hopes and dreams into something specific. That's not easy. We are now placing those specifications in a grocery list. The government calls this list, "RFPs" or "Request For Proposals." It's a shopping list. It says that we want these things (on the list) done. This is the beginning of accountability. To have accountability we must first have a clear idea of what we want done. The Texarkana project may or may not be a complete success, but it has already been successful in some things. It changed the way we went about talking about what we want to accomplish.

A school board and a superintendent employed a management support group to help them eliminate the educational deficiencies found in their poor and disadvantaged children. Their goal was that at the end of the project these youngsters would no longer be behind their appropriate grade levels. This goal was stated as a specific objective. The district put this objective in a RFP and put it out to bid. The private contractor would be paid only for every student who achieved the goal. If the student did not achieve the goal, no payment would be made. (Notice that the contractor had better produce what he says he is going to produce, or he is not going to get paid.) I don't know if it is going to actually work this way, but we find expressed here the temper of a public policy declaration of our time. And it will be achieved, if not at Texarkana, then in the OEO project; and if not there, then in one hundred other places. Because it does make sense. It makes sense not to talk about what we cannot do and talk instead of what we can do. We have got to find ways to make things work.

Those who got the contract in Texarkana agreed to specific conditions for those youngsters who were three or more years behind in their reading and arithmetic, whose parents made $2,000 per year or less, who were primarily black and disadvantaged--the contractor would get $80 for each child if, in 80 hours, that child achieved one grade level increase in reading as measured by external standardized tests and verified by an outside audit. In this case, the Epic Lab conducted the outside audit. Furthermore, if they had any child who gained a grade level in 60 hours or less, they would be paid $106. If a youngster did not gain a grade level in reading in 165 hours, the contractor would not be reimbursed for that student. Instead, they would have to work with that youngster at their own expense until that grade level increase was achieved. This is the zero reject plan in action. Also, six months after the end of that project, the school system could re-test any student for whom money was paid; and if that student had slipped below the level previously achieved, the contractor would return part of the fee paid for the student's achievement. Do you wonder that that concept is spreading around the country like a plague? What a wonderful goal for all of us in education. I can assure you there are many people who say they can do it. They bid on an OEO project to do just exactly that--to wipe out deficiencies, to get on with the job of building a great country where we do not have scholastic cripples. It is up to us to make up our minds once and for all to do the job that needs to be done and to find ways to make it happen. This is the promise in accountability.

I don't have to tell you how important it is in the field of vocational education to find ways to have people successfully employed, to give them marketable skills, to put their training on a "no nonsense" basis. The process is simple but profound. You must reach out if you need expert help to assist you in translating our hopes into demonstrable student competencies. You must then put these desired competencies into specifications as though you were designing a bridge, and if your own staff cannot do it, you must go somewhere else.

Let me spend a bit of time now on modes of proof. I'm not talking about achievement testing, but rather, modes of proof. What are the modes of proof one might use in accountability? In my judgment, if we don't use modes of proof but instead go back to the achievement testing of the standardized sort, we wreck the

concept of accountability since everything does not need to be measured in that form. The eye of accountability lies in the phrase "Modes of Proof." Recognition of an expanded notion regarding the assessment of results is the third major effect of accountability on school reform. For too long we confused measurement of results in education with standardized achievement testing of the paper and pencil, normal curve-based variety. If you are limited to this useful but narrow means of assessment, the pursuit of accountability would be frightening and even possibly destructive. Not everything in education can be or ought to be qualified in such a manner. Accountability in education, like accountability in other governmental enterprises, can make use of evidence from a variety of modes of proof. Education can make use of all these modes and, in the process, use tools for acquiring evidence such as video tape and pupil performance in simulated real-life situations. You in vocational education have an advantage, since you can see a student's behavior on a job. To argue that scientific measurement is limited to so-called objective tests is to display ignorance of the rich field of assessment, a limited experience with science, and an inability to foresee the rapid development of creative output instruments and strategies which money and attention can promote.

I can show you an interesting text book from 1924 by Mr. Turner of Stanford, a man of great stature. Nevertheless, he had biases appropriate for his time. That normal curve you know is not just a scientific device. It has social implications since certain people of our population have always showed up on one end or the other. Mr. Turner wasn't satisfied to put individuals on that spectrum. Instead, he had groups. Doctors were on the nice side, school teachers were about in the middle on the low side, and other people were slotted in elsewhere. He had a different conception of society.

I went back to school one night in Fairfax County. I was an associate commissioner (for whatever that's worth) and the fellow next to me was a Colonel in the Pentagon. Another fellow was working as a deputy mediator in the Department of Labor. We were all parents who had children in that school. A teacher rose to tell us about the BSCS biology program there is Fairfax County. By any criterion, this is one of the better programs in the country. This teacher did not tell us about BSCS biology, she didn't tell us about ecology, and she didn't tell us about the blood and sweat that went into the curriculum to make biology exciting to the student. Instead, she said, "We curve the students!" That just makes me see red. All over this great country of ours, we are curving the student. Now it's time we stopped curving students. It's malpractice, especially if you curve on on groups of 30 or less in a classroom. You should understand that this is just an example of the nonsense which is going on in the classroom.

To argue that scientific measurement is limited to narrow, so-called objective, tests is to display both ignorence of the rich field of assessment and an unwillingness to accept what people can do if they make up their minds to do it. I would remind you of what you already know. For example, in the Armed Forces, a lot of good material is available on the accountability model in the vocational training area.

The outside review component of accountability is the most vital mode of proof because science relies for its very existence on qualified review and replication.

I'd like to make some predictions about your programs, and hopefully your programs will fit these predictions. We are really talking about hopes more than about predictions. Here are some of the changes we would expect in schools in vocational education as a result of the call for accountability. When I say "changes we would expect," I'm not being naive. I hope for, rather than expect, some of these changes.

The teaching world will finally change from information giving to directing learning. Presently, in a classroom, the only person who is active more than a fraction of the time is the teacher who is preparing or giving lectures or talks, preparing, grading or reviewing tests and homework, or using that famous formula for assignments. The formula I'm referring to is "A = p/t"..."p" is the number of pages in a textbook and "t" is the useable time. Useable time is the number of days in the school year minus snow days, minus days removed because of strikes and minus the days students are in the assembly. If the book is twice as long as it should be, you then have twice the problem of coverage. This is all being done in the name of individualized instruction. And we are going to see changes in the way we go about teaching, because teaching isn't necessarily learning.

Ladies and gentlemen, we are obsolete if we persist in fighting technology, if we think "Sesame Street" is going to go away and if we think that the American people didn't learn one whale of a lot when those astronauts landed on the moon. If we are obsolete, we are going to lose our jobs because technology can do the job of information giving better than you and I can. This could mean, then, that we have a wonderful opportunity to do the better things of teaching--the things a great teacher does in opening up a field and finding out what the students really want to do. That's a high order teaching skill. If we persist in trying to be the information givers, we will continue to be too expensive.

I think the school facilities will become more open, less restrictive, less group oriented.

The curriculum will become more relevant. When the emphasis moves from process to result, the whole environment becomes a source for education. Schools can then be held in businesses, homes, or out in the open. Teachers can be assisted by students and adults. Since the criterion is results, the process becomes open to a variety of input. This has fantastic implications for vocational education. In St. Louis, for example, the students are employed by McGraw-Hill and Famous-Barr Department Stores, etc. These are students who were dropouts--and now they are getting a vocational education right there on the job. In Hollywood the child actors had to go to school to comply with state law. Los Angeles city schools for years have sent the teachers to the studios and the student actors completed their education on location when they were through with their job.

In the President's message in March of this year, he asked us not to confuse school with education. Today, our young people spend more time in front of the TV than they spend in school. This might be evidence that we need to build an educational system where the school is only a small but vital part of the educational process. This means we have to work with parents and with industries. This

means everyone in an educator. Some of us are professional educators in that we know how to manage the educational system of which the school system is only a small, but vital, part of the learning system. Again, we dare not confuse schooling with getting an education. We should know better.

Another area of out-moded myths, the result of an incomplete educational tradition, must be exposed and eliminated. Too much of our behavior toward children in the schools seems to reflect a "can't-do" philosophy. We seem more intent on proving that the bell shaped curve, with its built-in reflection of failure, ought to be the symbol of education.

Accountability calls for a new way of doing business. As that parent said, "If you don't learn my child, I'm going to fire you." That's not pleasant news. However, I think America's educators have strong guts, powerful muscles, and good minds. I don't think that ten years from now we are going to have to admit to failure.

I rather agree with the great philosopher, Charley Brown. His mother says, "Charley Brown, you are not living up to your potential." Along comes Lucy, and of course she gives it to him with both barrels by saying, "Charley Brown, you just are not living up to your potential." Then his principal says, "Charley Brown, you are just not living up to your potential." And Charley Brown, sadly, in his own way says, "There's just no greater burden than a good potential."

Ladies and gentlemen, your program has great potential, if you will infuse it with the concern for youngsters which I know you have. However, there is no longer room for dedication only. We need dedicated competence. If you are willing and able to incorporate accountability into your programs, I then think you are going to succeed and your success will make a difference.

SECTION V

PROJECT MANAGEMENT:

A MODEL FOR INTERNAL OPERATION OF EXEMPLARY PROJECTS

A Model for the Operation of Exemplary Programs

Dr. Robert Barnes

Coordinator, California Research Coordinating Unit

As a member of the California Vocational staff, I would like to take this belated opportunity to welcome you to California and to Squaw Valley. I see most of you have gotten the message that the mode of operation in Squaw Valley is a matter of informality and I think the saying goes, "When in Rome, do as the Romans do."

Dr. Lessenger gave you quite a lot to think about regarding this whole area of accountability. On the program it said something about using program managers or project managers. I'm taking the usual speaker's prerogative of changing this approach today. I think the majority of you would be disappointed if the speakers didn't do this. It seems to be expected.

Leon talked about change that must come about and must come about rapidly. He said we are in an era where we are being held accountable for our actions. You are here, interested, vitally interested, in getting exemplary programs off the ground. I personally believe that if we are to have the type of change society demands of all education, we have to change our way of thinking to a degree, and our way of looking at our educational programs. For this reason, I have taken the liberty of changing what I am going to talk to you about this afternoon. I thought for awhile, after listening to Leon, that I wasn't going to have to say anything, that he, instead, was going to say everything I planned to say this afternoon. He did a good job of it, too. However, there are some things that I am going to reiterate. I am going to do it as simply as possible.

What I am suggesting this afternoon is that you give serious consideration to one of the alternatives in looking at exemplary programs. This alternative requires developing and implementing exemplary programs with a process called systems analysis. Now, that's amazing; I thought at least half of you would throw up your hands and leave immediately. At the stage of our development today, when looking at this beast we call systems analysis, many of our people in education, I feel, are at the same point in their thinking as we were approximately ten years ago, when the word "evaluation" came up. We immediately assumed everyone was after us. I think today, as Leon pointed out, there is evidence that a number of people are after us.

Systems analysis is, as I have found, not as frightening as many of our engineers in industry, in defense, in other areas, try to make us believe. To me,

I think the best definition of systems is that it is nothing more than the enforcement of the use of common sense in planning, implementing, and evaluating our programs. The successful plan and design for a large complex of systems requires a systems approach. This systems approach recognizes all the interaction necessary to tie a total system together. It recognizes that factoring out a part of a problem, and then neglecting the interactions among the sub-systems and the elements, increases significantly the probability that a solution to the problem design will not be found. In other words, we cannot ignore one part of our system or another if we are going to come up with meaningful solutions to problems. It requires that the boundary of the system be extended outward as far as is needed to determine which interactions are significant to the design of our system. To implement the systems approach requires the application of a rational methodology. Just as the most characteristic feature of science is its method, so is the most dominant feature of systems its method. Systems approach requires not only consideration of a system large enough to evaluate these interactions, but the utilization of systems analysis methodology.

Three attributes which characterize the systems approach are: 1) it emphasizes the importance of the interaction which ties the system together, 2) it utilizes the methodology of systems analysis to plan and design a system or program (when I use the term "systems," I think in terms of our thinking right now, you can substitute in place of "systems" - "programs"), and 3) it applies the tools and techniques of systems analysis only where they are applicable.

Now a system is a set of elements which is organized to perform a set of designated functions in order to achieve the desired results. But first and foremost, if you are going to work in the area of systems, we have to have a definite stated purpose. When you are talking about exemplary programs, we do have a definite stated purpose. The stated purpose is spelled out very clearly and distinctly in the enabling legislation.

Elements are a set of resources organized to perform a highly interrelated sub-set of desired functions. The resources which comprise an element include the personnel, material, facilities, and the information needed to do the job. Above all we must remember that a system is embedded in a larger system. Our system of education or our system of exemplary programs is embedded in a larger system and in that larger system you have environments which are physical, political, social, economic and technological. And these environments comprise the super-system or larger system with which there are very strong inter-relationships. These environments are the sources of the information that you will use in planning and implementing the programs, but more importantly, these environments are the sources of the constraints which will limit your program.

Systems analysis is the process by which people develop the specifications of an optimal system in response to the unfulfilled human needs or desires. It is problem solving which involves a quantitative application of technology in order to identify and prescribe a solution. And the solution is the model within which you will operate the set of specifications for production, for installation, and for producing an optimum system.

The design process for developing this system is a fundamental sequence of activities which make up each stage of your analysis. Its input is information concerning need, resources and environment, and you will notice how needs, resources and environments continually keep coming up. Fancier systems analysis is undertaken in order to fulfill some set of needs or desires of a human being, and it is considered essential that his needs be identified, described and understood at the very outset. In other words, after your statement of purpose, the next thing you have to do is come up with a statement of needs. What is the need that will be served by this exemplary program you are looking at? A general statement of objectives and a knowledge of needs and desires are not sufficient to provide an operational guide for your system designer or your decision-makers because in addition to these three factors, you have to have a system of functions which will represent the fulfillment of needs and objectives.

For instance, the design criteria must be identified and described in general. There are three primary classes of criteria: 1) effectiveness or benefit criteria, representing the measures of need fulfillment; 2) resource criteria, representing your cost, and 3) schedule criteria, representing the time that will be required. These three criteria are necessary in addition to your needs statement and your objectives statement. The relative importance of each type of criteria to the achievement of the program must be evaluated. The constraints imposed on the system by its environment must be identified and described.

In describing these activities, I am certain I have confused you to the utmost. Nevertheless, the next process requires that we make up what we call the value model. This is the first basic activity in designing a functional model or a program model. The value model includes, in addition to the objectives and desires, a transformation of these general values to an operational system of criteria suitable for guiding the subsequent design planning and decision making. Once you have developed a value model, a statement of purpose, a statement of need, objectives, and the criteria for your design, you then move into the working system. I think in looking at our programs, we may be toying with the idea of classifying as exemplary, or trying to get funded under exemplary, programs which, if designed to use this approach of systems analysis, will be well on their way toward making changes. changes which are very much needed. The goal of this whole approach is to look at the man-made segments of our environment in education as a kind of system and to integrate this systems concept into our own thinking. This special way of looking at the world requires a search for specific purposes and requires us to relate functions and processes to these purposes. The systems outlook will also require us to assess performance continually, and to exercise quality control, and then based on quality control, adjust and plan for improvement.

The systems approach may call for some change in our way of thinking. When we discuss education, for example, most of us can give a precise description of schools, facilities, books, personnel, curricula, and other such items. However, we become much less specific when it comes to describing what education "does" and we are often extremely vague when we attempt to explain what education is "for." The systems approach begins by finding an answer to the question of "What is it for?" In other words, in looking at an exemplary program, I think one of the first

things we should ask ourselves, in deciding whether we should try it, is "What is it for?" After we do this, I think we should then ask ourselves, "What does it do?" or "What does it purport to do?" And when we look at the projected outcome of this, I think the third question we should ask ourselves is, "So what?" So what will happen if these outcomes are, in fact, made into reality. Systems thinking requires that we pay more attention to the attainment of purpose and the assessment of the attainment of purpose of the system. One way to look at a system, and keep its purpose in mind, as our central concern, is to utilize the optimum organization and resources available in order to assure that we attain or accomplish the performance required in the stated purpose. Therefore, this key criterion by which the effectiveness or the adequacy of the performance of a system can be evaluated has to do with how closely the output satisfies the purpose. It gets back to this business of evaluation and accountability. Because a system is accountable for the use of the resources that have been made available to it, the economy of the system is another criteria by which the adequacy of the system can be assessed. The goal is to attain systems objectives with the least possible effort and the least expenditure of time and resources. The systems approach can be characterized by readiness to accept and even to plan for changes in the system. Any system that is designed must be designed with one thought in mind. If it is a workable system, it must be a system that will accommodate changes as are dictated by the needs of the clientele being served. So it must be something that is viable to change.

There are six major approaches used in transforming what the industrial complex calls their systems strategy into that which education can use. This is assuming you have a definitely stated purpose and you have identified the needs to be served by this system. These functions are: 1) Formulate objectives which are clearly stated in measurable terms. 2) Develop a test. That is, develop criteria which will measure the degree to which these objectives are obtained. Once the objectives are stated, we must then develop a statement of criteria. 3) We must analyze the learning task. In other words, we must ask what the specific things are that the learner or the recipient of your program must master in order to perform at a level which is consistent with the criteria you have established. 4) We must design the system. In designing the system, we are talking about identifying the functions which must be carried out by personnel in order to satisfy the learning tasks which, in turn, must be accomplished if we are to meet the objectives we have stated. And if we meet these objectives, then supposedly we will meet the stated purpose of the entire program. We have to determine who or what has the best potential to accomplish these functions and we have to decide when and where these functions are to be carried out. 5) The design statement and the design system should be tried out and tested. The system can be put into operation and the performance of the learner can be measured in terms of the criterion which have been established to measure our stated purpose. 6) On the basis of the output, we will then have some more information necessary for the project manager to make the necessary changes (if any are needed) to completely meet these objectives.

I think the area that Dr. Lessenger pointed out in which we are markedly inadequate is the area of stated objectives which are measurable and meaningful. We've

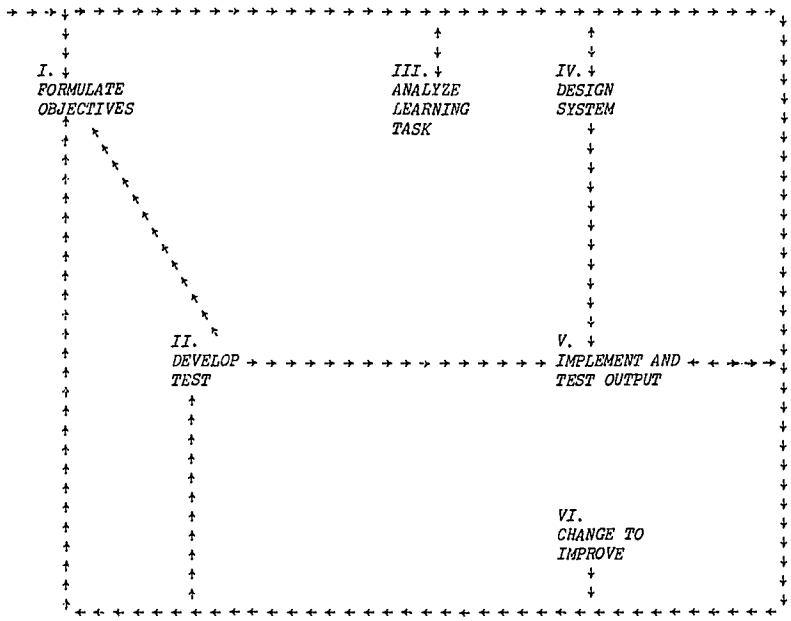
given little thought to the assessment of learning tasks and the input competence. In other words, we must determine the competency of the person who is going to be trained. I think we are also guilty of inadequately using the output from the different components of our system. This is feedback needed to make changes. Our statement of educational objectives set down by our local boards or found in our state guidelines are generally stated in broad and glowing terms which can be interpreted in about any direction anyone wishes to interpret them. Our teachers are not usually accustomed to defining learning outcomes in operational and measurable terms. Without clearly identified learning objectives, your selection of materials, your selection of methods, your selection of media will be very difficult and those items which are selected will lack a great deal as far as being relevant or appropriate. In stating objectives, they should specify what the learner is expected to be able to do. I think too often we have programs in which we carry our objectives around on the top of our head. At the end of the program, someone gets in a flap and we have to evaluate and we have to measure. We then come up with tests (sometimes we use standardized tests) and as a result, we find ourselves measuring student competencies for which they were probably not trained. We need to use verbs that denote observable action. We need to indicate the stimulus that will get the kind of behavior that our objectives specify. We must specify resources to be used by the learner and by the persons with whom the learner will interact. The objectives should specify how well the behavior is expected to be performed by identifying the accuracy or the correctness of response and the response length or speed or rate or whatever other criteria you might come up with. Also, our objectives must specify under what circumstances the learner is expected to perform by specifying the physical or situational circumstances and the psychological circumstances under which the learner will function. If our objectives are formulated in this way, they will be measurable and they can also serve as a basis for the development of a system.

Let me share with you the results of the systems analysis workshops which were conducted for local district and county coordinators and directors in vocational education in California last fall. The purpose of our vocational education program in California is the same purpose as in other states. It is spelled out quite clearly in the preamble of our enabling legislation. Starting with that purpose, a statement of needs was developed by an advisory committee working with us in setting up these workshops. The functions (see diagram) of our operational program (developed through systems analysis) are the product of nine different groups at three different workshops. We have subsequently identified the functions people felt were critical or necessary in order to have an effective program of vocational education. This diagram you have before you is a system design. We realize the functional analysis is not perfect. We know it must be changed as the needs change, but it has been adopted on a statewide basis for local districts responding to the call for district plans. Districts are asked to design their plan on the basis of these twelve functions. They are asked for each function, to identify what they had been doing during the past school year, and what they are doing during the present school year, for each of these twelve functions. They are then asked to describe the activities they have planned for these functions for the coming school year. They are asked to project expected outcomes for the activities they have planned, and they are asked to identify questions which they feel should be asked to determine the effectiveness of their activities relating to each of these functions.

We're just getting our feet wet in this area of systems analysis, but we have a number of district plans which have come in that are quite good. It allows our people to take a systematic look at their programs in terms of the various functions in which they might be involved. It also allows them to budget on the basis of these functions which are identified. In other words, how many dollars in terms of staff time, clerical time, etc., are you putting into the area of population need analysis? I feel that when this additional step is implemented, it will be to the advantage of our local people, because it will give them one more tool they can use in making a decision regarding the program. We surely know we need all the tools we can lay our hands on in making decisions in education. I think for too long we have been guilty of pulling the shade, pulling our left ear, blowing our nose, and writing down whatever seems to feel right at the time. We have to look at it in an organized, systematic way. We have to look at the alternatives and we have to be ready to trade off on these alternatives between the areas of effectiveness and cost. For a long, long time we have been operating on the basis that better education for youngsters requires more money. By and large, we have been treated pretty kindly in terms of financing. Now, lo and behold, we see our bond issues going down the drain. It is almost the exception to find one that does pass. We find people criticizing education and ridiculing us for our efforts. I think that we are finding out that people can't afford us.

The ideas I am proposing with this type of system will assist you in looking at, and in evaluating, the programs you think are exemplary. With this system, you've got another tool with which to make decisions which have to be made. It gives you an idea of what the trade-offs are between cost and effectiveness. In other words, "How much effectiveness can you offer in terms of the bucks that are available?" It gives you a chance to look at the alternatives. It also gives you a chance to discover more efficient ways of operating with the limited dollars available.

This is all necessary because I am firmly convinced that the days of the free ride for public education are just about terminated.


I.
FORMULATE
OBJECTIVES
II.
DEVELOP
TEST
III.
ANALYZE
LEARNING
TASK
IV.
DESIGN
SYSTEM
V.
IMPLEMENT AND
TEST OUTPUT
VI.
CHANGE TO
IMPROVE

SECTION VI

EMERGING SUBSTITUTE SYSTEMS OF EDUCATION FOR HIGH SCHOOL DROPOUTS AND POTENTIAL DROPOUTS

Emerging Substitute Systems of Education

for

High School Dropouts and Potential Dropouts

Dr. Leon Minear

Director, Division of Vocational and Technical Education
BAVTE, U.S.O.E.

Many high school students are unable to succeed in regular day-school programs. This study reviews substitute systems and programs which have evolved outside regular day-school patterns in response to the needs of school-alienated young people and provides examples which may assist school administrators and exemplary project managers in developing new programs. These substitute systems include special programs in public schools as well as those conducted by outside agencies and firms.

Agencies and Institutions Which Have Developed New Educational Systems for Dropouts and Potential Dropouts

The need for new approaches in educating school-alienated youth has led public schools and organizations such as community action groups, business and industry, state departments of education, and Federal agencies to develop special programs outside regular educational structures. New systems are emerging with the institutionalization of innovative projects and programs.

Some public school systems have been making extensive efforts to prevent students from dropping out of school or to provide them with good educations once they have left regular high schools. Many different approaches have been tried, such as the development of educational centers which provide a new learning environment for the dropout and the use of contracts with private firms for public instruction.

Assistance Rendered by Business and Industry:

Business and industry have found that basic education is often necessary before specialized vocational training of any depth is possible. Employers have worked with schools, Federal agencies, and other organizations to help develop programs for potential dropouts or dropouts whom they will not be able to hire without costly remedial education. Business has not only provided representatives for advisory groups and positions for work-experience programs, but it has also sent company personnel to schools and centers to lecture or assist program administration. In addition, it has financially supported innovative projects, often in cooperation with other agencies.

Federal Assistance:

Federal agencies have been active in funding projects and administering programs to help disadvantaged youth, potential dropouts, and actual dropouts. The U. S. Office of Education (HEW) administers Title VIII, ESEA, which funds dropout prevention programs in public school systems. Requirements for allocating vocational education funds include spending a set percentage on the disadvantaged, who are often the most likely to leave school before graduation.

Manpower development programs under the institutional training portion of the Manpower Development and Training Act include basic education and preparatory vocational education. These are usually provided at centers which also make supplementary services available. An increasingly important type of manpower development program is on-the-job training (OJT), which enables an individual to begin work as soon as possible and thus reduces the cost of support and training. This method has been successful for persons who are ready to work and who are not considered hard-core disadvantaged. The extension of Federal reimbursement to cover costs of providing instruction in basic reading and mathematical skills, employability skills (such as good grooming) and preparatory vocational education is necessary if OJT is to be of value for the hard-core disadvantaged and school dropouts.

Community Involvement:

Community action groups have supported Federal, state, and local programs with advice and administrative assistance. They have established programs of their own where the need was felt, but they tend to work cooperatively with government agencies, businesses, and churches where possible, drawing on them for funding, personnel, and facilities. Several innovative methods developed by community action groups have been adopted by regular public schools -- one good example of this has been the storefront schools/street academics approach.

Adult Education:

Adult basic education has been an active force in remedying educational deficiencies for adults, thus enabling them to improve their situations in life. Recently the minimum age limit for participation in adult basic education programs under the Adult Education Act of 1966 was dropped to age 16. It is estimated that about one-fifth of the students in adult basic education programs are ages 16-22. Youths who have not been able to achieve even basic reading, English language, and mathematical skills are now able to take adult basic courses in order to bring themselves up to a higher level of competency. Some states have established comprehensive systems of adult education with the goal of making education from grades 1 through 14 available for anyone in the state, regardless of age.

Private Schools:

Another system which has developed in response to educational needs has been the private school which will, for a fee, provide education in any subject from remedial reading to technical education. One of the more useful methods employed in these schools is the accelerated schedule, in which a student can finish a course within weeks rather than semesters.

Common Features of Substitute Systems

Certain commonalities occur in programs for students who have not succeeded in regular high school programs. The use of educational centers, where many services as well as educational courses are available, has become an important organizational technique, particularly in urban areas.

Exemplary methods found in many programs for dropouts include individualized programs of instruction, programmed learning materials, non-graded courses, assessment by performance or achievement rather than by time spent, job-sheets or job-orders, work-experience programs, small teacher-pupil ratios, and close counselor-student relations.

Students who feel alienated from school frequently have information needs which can be met by exploratory courses, occupational orientation, and training in employability skills such as job interviewing and work attitudes. These programs can be of great value in motivating students to study and learn, since they permit the students to see more clearly the relationship between school and work.

Close coordination between this type of program and the State Employment Service and local business and industry is another common feature. Dropouts frequently want and need work or the realistic expectancy of work in order to be motivated to develop basic education and preparatory vocational education skills. Representatives from the State Employment Service and the business world can materially assist teachers and counselors in inspiring young people to study and learn, once job opportunities and requirements are clearly defined.

Current Exemplary Projects and Systems

The following descriptions of representative exemplary systems and related curriculum trends are offered as sources of ideas for project managers. They all may be incorporated into regular high school programs.

1. *NAME OF PROJECT: Urban League contract with Department of Labor*

   LOCATION: 26 cities

   SOURCE OF FUNDING: MDTA

   ADMINISTRATIVE AGENCY: Urban League

   TARGET GROUP: 7,000 hard-core unemployed

   ORGANIZATION OF PROGRAM: The Urban League subcontracts for on-the-job training to its affiliates in the 26 cities. Employers receive up to $1,000 per recruit to help pay for supportive services such as remedial education, job coaching, and minor medical care.

   SCHEDULE OF OPERATION: On-the-job training with reimbursement to employer of supplementary costs of training.

2. *NAME OF PROJECT: Prevocational Training Center*

LOCATION: Bismarck, North Dakota

SOURCES OF FUNDING: State Department of Education; MDTA

ADMINISTRATIVE AGENCY: Bismarck Public Schools

SPONSORING AGENCIES: North Dakota State Board for Vocational Education and the Employment Security Bureau.

TARGET GROUP: School dropouts, 16 to 21 years of age

ORGANIZATION OF PROGRAM: Exploratory center in which a student may try out twenty different occupational areas before selecting the one he will pursue in regular high school; other areas are available through exploratory work-experience with local businessmen. Basic education is provided.

SCHEDULE OF OPERATION: The center is operated like a job situation: punch time clock; 8 a.m. to 5 p.m. day; coffee breaks; job orders.

RECRUITMENT: State Employment Office referrals

EXPERIENCES OFFERED/CURRICULUM: Basic education, exploratory experiences, guidance and counseling.

Applicants are tested for abilities and interests, then individualized programs are developed coordinating basic education with regular programs which will be pursued in public high schools.

Programmed learning materials and job orders are basic training techniques. Small student-to-staff ratios are maintained. Group guidance sessions provide give-and-take interaction with other students and teachers. Attitude sessions provide employability skill training.

Job orders point out concretely to the student the relationship between basic education and vocational training and employment. They are used for each vocational area which the student wishes to explore, reducing the need for an instructor to provide verbal, time-consuming directions.

3. *NAME OF PROJECT: Philadelphia High School Academies*

LOCATION: Philadelphia, Pennsylvania

SOURCES OF FUNDING: HEW grants; Urban Coalition (business and industry); Philadelphia School Board

ADMINISTRATIVE AGENCIES: Urban Coalition; Philadelphia School District

TARGET GROUP: 11th and 12th grade students with no post high school goals

ORGANIZATION OF PROGRAM: Ten academies, each attached to a specific inner-city school. Each academy provides vocational education in a particular occupational cluster.

Project teams, composed of representatives from businesses and industries in the Urban Coalition are formed around each academy; a project manager is loaned by one of the companies to direct activities of the academy.

SCHEDULE OF OPERATION: Basic education in the regular high school in the morning; specialized classroom work in job training and/or work-experience in the afternoon.

RECRUITMENT: Students are selected from Philadelphia public schools on bases of interest, recommendation from principal or counselor, and an interview by a project team.

EXPERIENCES OFFERED/CURRICULUM: Vocational education is organized around six occupational clusters identified as areas of high manpower needs and job opportunities; employability skills such as job interviewing and good grooming taught by businessmen; work-experience for some programs.

Curricula are designed through task analyses of jobs which are then turned into curriculum objectives and learning modules.

Academies include the Business Academy, IBM Academy, Academy of Applied Electrical Sciences, Aviation & Aerospace Academy, and Health Services Academy -- some of which are duplicated to total ten operative "schools within schools."

4. *NAME OF PROJECT: Street Academies*

LOCATION: New York City

SOURCES OF FUNDING: Urban League; OEO grant; Ford Foundation; businesses; community agencies

ADMINISTRATIVE AGENCY: Urban League

TARGET GROUP: School dropouts

ORGANIZATION OF PROGRAM: Storefront schools -- Eleven "Street Academies" provide basic education; two "Academies of Transition" provide general education in a more formalized structure; two prep schools prepare students for college entry. A student progresses from street academy to prep school on meeting set reading level standards.

RECRUITMENT: Handled through word-of-mouth and by street workers who search pool halls, playgrounds, parks, and bars for prospective students.

EXPERIENCES OFFERED/CURRICULUM: Students attend in dress of their choosing. Study programs are individualized; effort is made to include consideration of personal problems and needs in designing an instructional program for a student. Communication is in the language of the street.

No student is asked to leave the program for any reason, though he may be reassigned to another phase of the program.

Among the fourteen sponsors from business and industry are American Airlines, American Express, Burlington Insurance, Celanese Company, Chase Manhattan Bank, IBM, McGraw-Hill, and Time Incorporated.

5. NAME OF PROJECT: Center for Vocational Arts

LOCATION: Norwalk, Connecticut

SOURCES OF FUNDING: State Department of Education; Norwalk Board of Education

ADMINISTRATIVE AGENCY: Norwalk Public School System

TARGET GROUP: School-alienated youths between 15 and 21 years of age

ORGANIZATION OF PROGRAM: Occupational education center; guidance and work-experience emphases.

SCHEDULE OF OPERATION: Students attend classes three hours daily and work part-time for four hours.

RECRUITMENT: School administrators refer students, using specific guidelines developed to identify potential school dropouts.

EXPERIENCES OFFERED/CURRICULUM: Eight occupational areas; basic education integrated with vocational training; extensive guidance and counseling; work-experience.

Individualized instructional and guidance program is developed for each student based on his needs, goals, and abilities. Educational

specialists in general education subjects aid teacher and counselors in developing the individualized programs.

Small group instruction and advanced techniques such as programmed materials are an integral part of the curricula. Courses are ungraded; progress is determined not by time spent on a task, but by occupational competency achieved.

6. NAME OF PROJECT: Adult Education System

LOCATION: North Carolina -- in public schools, community colleges, churches, trailers, public and private buildings

SOURCES OF FUNDING: State and local educational agencies; Adult Education Act of 1966

ADMINISTRATIVE AGENCIES: Community colleges and technical institutes under State Department of Community Colleges

TARGET GROUP: Persons needing adult basic education, ages 16 and up

TYPE OF ORGANIZATION: Division of adult education within the fifty-four State community colleges and technical institutes; some full-time centers; evening instructional courses; learning laboratories providing programmed learning materials for grades 1-4, open day and evening; contractual agreements or affiliations with local school districts, which issue high school equivalency certificates or adult high school diplomas.

SCHEDULE OF OPERATION: Usually evening courses taught by day-school teachers; programmed materials in learning laboratories available day and evening.

RECRUITMENT: Media announcements; word-of-mouth; churches; community organizations such as Welfare, CAP, Labor, Employment Service.

EXPERIENCES OFFERED/CURRICULUM: Basic education courses in reading and mathematics, integrated in some adult learning centers with vocational subjects; high school subjects to enable high school completion; continuing education.

Classes include use of mini-labs which enable a teacher to incorporate programmed instruction into the course and individualize instruction to meet students' learning needs. Learning laboratories, which cost $5,000 to $6,000, are available day and night with a coordinator present. They include organized programmed instruction which a student may be phased into at any level from grade 1 to 14.

No specific programs are designed for high school dropouts, but with the permission of the local superintendent, youths 16 years of age or

older may leave their secondary schools and enter adult education programs. This enables them to upgrade their basic education to the point where they can return and succeed in secondary school, or to complete their high school education in the adult program (which may be more acceptable to some students).

7. NAME OF PROJECT: Metropolitan Youth Education Centers

LOCATION: Denver, Colorado

SOURCES OF FUNDING: 60 percent by city of Denver; 15 percent by Jefferson County; 25 percent under Title I, ESEA

ADMINISTRATIVE AGENCY: Denver Public Schools

TARGET GROUP: School dropouts ages 16 to 26

ORGANIZATION OF PROGRAM: Four occupational education centers; credit earned is sent back to high school previously attended (centers do not grant diplomas).

SCHEDULE OF OPERATION: Year-round classes offered day and night to suit student's schedule.

RECRUITMENT: Word-of-mouth referrals by students in the program; street workers who search pool halls and bars; lists of dropouts from schools; Employment Service referrals.

EXPERIENCES OFFERED/CURRICULUM: Basic and vocational education; small classes of no more than six to ten students per teacher; some programmed instruction; individualized instruction.

Close coordination is maintained with the State Employment Service, which sends a representative twice a week to interview and test students and to bring information regarding job opportunities and requirements.

8. NAME OF PROJECT: Vocational Village

LOCATION: Portland, Oregon

SOURCES OF FUNDING: Oregon Department of Education; Portland Public School System

ADMINISTRATIVE AGENCY: Portland Public Schools

TARGET GROUP: School dropouts ages 14 to 22

ORGANIZATION OF PROGRAM: Accredited vocational high school for dropouts with complete open-door policy.

SCHEDULE OF OPERATIONS: Regular school day; regular attendance is encouraged; use of time clocks and cards; fall, spring, and summer sessions.

RECRUITMENT: Word-of-mouth; high school counselors; court counselors; Employment Services; cards mailed to all students in Portland School District when they are formally dismissed from school.

EXPERIENCES OFFERED/CURRICULUM: Basic education, vocational education, work-experience, guidance and counseling. An initial performance evaluation is made of each student to assist staff in developing his program of study.

Instruction is achievement-oriented. Job sheets are chief teaching technique used -- each describing one task to be achieved, how to do it, what behavioral changes will result. Four or five job sheets a day would be average performance.

Transferring from one program to another is facilitated and encouraged. Programs begin when needed and end when the student is ready. Students may work for a high school diploma, for general education development, or for a certificate of occupational competency. Work-experience is an integral part of the curriculum--students are placed in cooperative programs as soon as possible, while continuing to receive supplementary basic and vocational education. Vocational training is handled through the job cluster approach.

Students sign agreements with the staff as to what will be expected from a particular course and what will be expected of the students. A representative body elected by the students participates in staff meetings to draw up the agreements which provide criteria for entering Vocational Village, participating in programs, and leaving. Students are not punished in this school -- they have the choice of following the agreements or leaving.

9. *NAME OF PROJECT: Dorsett Educational Systems contract with Texarkana Public Schools*

LOCATION: Texarkana, Arkansas

SOURCE OF FUNDING: ESEA, Title VIII

ADMINISTRATIVE AGENCY: Dorsett Educational Systems

TARGET GROUP: Students in grades 1 to 12

ORGANIZATION OF PROGRAM: Contract for instruction between a public school system and a private company to design and implement a

new system of instructing academic skills. If the company does not succeed in raising a student's performance, it will not be paid.

Objectives center upon dropout prevention; participants are presently drawn from grades 7 to 12. Next year students from grades 1 to 6 will be included.

RECRUITMENT: Random selection from lowest quartile of students in Texarkana Public School System. Academic schools are used currently; students from vocational schools will be added in the future.

EXPERIENCES OFFERED/CURRICULUM: Audio-visual programmed instruction from Dorsett materials, and guidance and counseling to develop better study habits. Each student must reach predetermined reading and mathematical ability levels on norm-reference test instruments before graduation from the program (and before Dorsett receives payment).

Two hundred students are currently participating; four hundred will be the maximum number.

10. NAME OF PROJECT: AVCO Educational Service Center

LOCATION: Glasgow, Montana

SOURCES OF FUNDING: Department of Labor -- WIN and MDTA

ADMINISTRATIVE AGENCY: AVCO subcontract

TARGET GROUP: Disadvantaged persons on welfare or otherwise in need of employment. Current group is 70 percent Indian.

ORGANIZATION OF PROGRAM: Two programs are in operation at the AVCO plant at the former SAC base in Glasgow. The WIN program provides training for welfare recipients with families, most of whom are female heads-of-households. The MDTA project provides training for family heads and supporting services for family members. Living quarters and day-care centers are available.

RECRUITMENT: An AVCO recruitment team works with the State Employment Service to locate potential participants.

EXPERIENCES OFFERED/CURRICULUM: Assessment, occupational orientation, basic education, GED certificate, vocational training -- institutional and on-the-job, employability skills. Wives receive home economics instruction in family skills.

Jobs and work-experience positions are found in the local area as well as provided by AVCO, when available.

11. NAME OF PROJECT: Aetna Life and Casualty Clerk-Typist and Clerk Program for High School Dropouts

LOCATION: Hartford, Connecticut

SOURCES OF FUNDING: Aetna Life and Casualty Company; National Alliance of Businessmen; Department of Labor

ADMINISTRATIVE AGENCY: Aetna Life and Casualty Company, Inc.

TARGET GROUP: Female high school dropouts, 16 to 65 years of age

ORGANIZATION OF PROGRAM: Training center in company facilities, run by Aetna personnel, preparing trainees for employment with Aetna.

SCHEDULE OF OPERATION: Ten girls at a time are trained for ten weeks in the center. The first two weeks are spent full-time in the center; in the remaining eight weeks, mornings are spent in the center and afternoons are spent working in the department where the student will be located after training is completed.

RECRUITMENT: Concentrated Employment Program or State Employment Service. Criteria for acceptance includes low-level of income, problem job history, lay-off or sporadic employment and fourth-grade reading level.

EXPERIENCES OFFERED/CURRICULUM: Program provides language, typing, machine and mathematical skills. Graduates are at intermediate level of employment -- clerks or clerk-typists.

Social and employability skills are also included in training, such as office etiquette, environmental survival, nutrition, grooming, and interpersonal relations.

The program was started six years ago, using only Aetna funds. This year the Department of Labor and NAB have assisted in the funding.

SECTION VII

PRESENTATION OF PAPER AND MODEL ON EVALUATION OF EXEMPLARY PROJECTS

BY CENTER FOR OCCUPATIONAL EDUCATION, NORTH CAROLINA STATE

Introduction

Dr. John Coster

Presiding Director
Center for Occupational Education
North Carolina State

I am here to represent the Center for Occupational Education at North Carolina State. We are the second of two research and development centers for occupational education.

At the present time, we are being supported from cooperative research money in view of the fact that Congress did not appropriate money specifically for vocational education research. Of course, our mission is to improve occupational education. We are concentrating primarily on four areas:

Postsecondary education;
The middle grades or intermediate programs;
Occupational education in rural areas; and
Evaluation.

We have been interested in two aspects of evaluation. One aspect is program evaluation, the other is project evaluation. This is the evaluation of pilot projects, primary projects and developmental projects, as well as other projects of this type. A little bit later on, you will hear about one of the projects we have evaluated, having to do with services, training and education in rural areas. What I want to do here, in setting the stage for the other two presentations, is to talk about what I call "The Role of Evaluation in Producing Plan Change." You have heard some of the theoretical and practical bases of the exemplary programs and I shall not repeat them here. The whole notion at the present time that is being promulated in the exemplary programs basically comes down to three points:

1) There is concern about change. Sometimes I wonder whether the change is for the sake of change or whether there is change toward some viable ultimate goal and set of objectives about which we must be thoroughly conscious. Obviously, there is some dissatisfaction with what has happened in the past. There is an eternal hope that what happens in the future will be better. There is the notion that change must take place. What we are really concerned about is planned change and moving toward certain specific kinds of objectives.

2) Exemplary programs must be based on the products of research. There has been some research in vocational education. Some of our critics say there has not been very much, and what there has been has not been very good. Nevertheless, since

the Vocational Education Act of 1963, there has been a considerable amount invested in the research effort. The product of this research must be manifested in the exemplary vocational education programs. The exemplary program becomes an instrument for putting research into practice.

3) There is an emphasis on the development of a new model, a new concept, new ways of responding to the needs of society by developing new programs. I would like to think of exemplary programs as being prototypes of new car models which are continually being constructed by car manufacturers. Some dream futuristic plans for an automobile which may exist two or three decades hence; and part of this can be incorporated into new operational designs each particular year, but not all can be implemented at one time. At any rate, I think of the fifty-six exemplary programs, which will eventually be funded in the fifty-six states and territories, as being prototypes of the new models which eventually and hopefully will be incorporated first in the local school system, second in the state system, and third, in the national system. It would not, however, necessarily be in that order.

Your contracts should call for evaluation by an outside team. We are here to say something about our experiences in the evaluation process and to comment on how outside teams might function. Over the period of a year, during which time we have been involved in a somewhat limited basis on project evaluation, we have learned certain lessons that bear repeating at this particular time. They are lessons which I suppose were somewhat costly to us. It took some time, but we think we have learned lessons which are important. First, the evaluator must be part of a team--not someone who sits outside looking in at the on-going process. He is concerned, among other things, with being able to help define objectives and with helping in changing programs where they need to be changed. I cannot imagine a pilot program being stagnant; instead of stagnation, there should be a certain dynamic element in such a program. Dr. Griessman and Mr. Morgan will say more about this particular lesson. Second, there is the need for continuous feedback--not only to program managers, but also to other people who might be interested in the program. Third, our measuring instruments are not what we would like them to be at this time. Fourth, our measurements are not necessarily appropriate to the population for which our programs are being designed. They are not particularly appropriate for the disadvantaged who have difficulty with reading and who are not really test-prone as far as their particular sphere of experience is concerned. We have had some rather undesirable experiences with instruments which were not particularly appropriate to the target audience. As a result, we have been looking at other ways to achieve the correct evaluation results. This problem is not ours only--other people in the country have been looking at other ways to produce evidence. This, basically, is our role: We must produce evidence to determine not only that the program objectives have been met, but we must also produce evidence to determine if the program is capable of installation. The whole notion of exemplary programs is to find new devices which eventually will find their ways into the mainstream of occupational education, creating new programs for 1975 or 1980.

We must produce evidence that the programs are economically efficient; we cannot rely on risk capital forever. These programs must be incorporated on the basis of economic efficiency so that they can be incorporated within the existing level of

funds. We also want to produce evidence that the exemplary programs will bring about changes not only in terms of programs, but in terms of individuals. These are some of the concerns we have in terms of the overall evaluation of exemplary programs.

Finally, evaluation must produce information which demonstrates that investments in these programs have brought about changes which are worthwhile. In addition to accountability, we must think in terms of responsibility. Each person involved in exemplary programs has a responsibility to insure that the investments made in his particular project are worthwhile. I hope this has provided you with an introduction to some of the issues and problems inherent in the evaluation process.

An Approach to Evaluation:
A Model for Evaluating the North Carolina Exemplary Program

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The purpose of this paper is to present a description of the North Carolina Exemplary Program, henceforth the Apex Program, and the evaluation model and methods involved with the evaluation of this program. While this paper is primarily concerned with the Apex Program evaluation, many aspects of this approach to evaluation may be generalized to other programs.

The Apex Program

The lineage of this exemplary program can be traced directly to the general thinking about career development manifested in the legislation precipitated by the high level of youth unemployment. Under Part D (Exemplary Programs and Projects) of the Vocational Education Amendments of 1968 (P. L. 90-576, Section 141), Congress defined the purpose of exemplary programs and projects: "to stimulate, through Federal financial support, new ways to create a bridge between school and earning a living for young people, who are still in school, who have left school either by graduation or dropping out, or who are in postsecondary programs of vocational preparation, and to promote cooperation between public education and manpower agencies."

The Apex Program, with its three-year allocation of approximately $400,000, will be funded through the Office of the Commissioner. Venn (Policy Paper AVL-V/0-1, 1969) pinpointed the priorities that the Office of Education had set in light of the 1968 Amendments:

1. Provisions for broad occupational orientation at the elementary and secondary school levels so as to increase student awareness of the range of options open to them in the world of work.

2. Provisions for work experience, cooperative education and similar programs, making possible a wide variety of offerings in many occupational areas.

3. Provisions for students not previously enrolled in vocational programs to receive specific training in job entry skills just prior to the time that they leave the school. (Some of these training programs might be very intensive and of short duration.)

4. Provisions for intensive occupational guidance and counseling during the last years of school and for initial placement of all students at the completion of their schooling. (Placement might be in a job or in postsecondary occupational training. Placement should be accomplished in cooperation with appropriate employment services, manpower agencies, etc.)

5. Provisions for the grantee or contractor to carry the program on with support from regular funding sources after the termination of the Federal assistance under Part D of P. L. 90-576. (Federal assistance under Part D cannot exceed three years.) (Policy Paper AVL-V70-1, 1969.)

This policy statement, together with Section 141 (Vocational Education Amendments of 1968, Part D), guided our efforts in developing the exemplary program.

During the summer of 1969, the Apex community of Wake County, North Carolina, was selected as the site for exploratory work in the development of a middle grades program by the Center for Occupational Education at North Carolina State University. This project stimulated the interest of school personnel in implementing a total comprehensive program in occupational education. The interest displayed by school personnel in this area was one of the major factors contributing to the selection of the Apex attendance area as the locale for the present project. A number of other factors also were considered during the selection process. Apex is the most rural community in Wake County. The economic focus of this community is undergoing a rapid transition from a predominately agrarian economy toward increased industrialization. Although Apex is located 20 miles from Raleigh, the character of the population in the community and problems of providing adequate occupational education more closely resemble the typical rural communities of North Carolina, and, indeed, of the South, than the larger urban areas. The transition period has required a re-examination of the needs for occupational education. The community itself cannot absorb the products of the school in its immediate labor force. The socio-economic level of the community is relatively low. The per capita income is below the average for Wake County and for North Carolina. The Apex attendance area received the largest amount of Title I ESEA funds of any school system in the county. Approximately 55 percent of the students in the Apex area qualified under Title I support, the highest percentage of any Wake County attendance area. Obviously, the project focuses on an area that is economically depressed.

There is an equal distribution of whites and blacks in the Apex attendance area. The proportion of black youths in the attendance area, 50 percent, is the highest for any attendance area in Wake County, and is higher than the proportion of the black population in North Carolina. According to Mann (1963) the black population is increasing proportionally in the target attendance area. The integration plan has been completed for the Apex attendance area. The student body in each of the schools will be approximately equally divided between black and white students. The school dropout rate is now approximately 40 percent, and the academic achievement level in the Apex attendance area is the lowest of any of the Wake County attendance areas.

The Apex attendance area includes four schools:

1. The Holly Springs Elementary School, which includes grades 1-5, with an enrollment of 250 students.

2. The A. V. Baucum Elementary School, which includes grades 1-3, with an enrollment of 250 students.

3. The Apex Elementary and Junior High School, which includes grades 4-8, with an enrollment of 800 students.

4. The Apex High School, which includes grades 9-12, with an enrollment of 600 students.

The central participants in the project, therefore, are the 1900 students in the four Apex schools and the 75 administrators and teachers who operate the program as well as the parents and other members of the community. Since there are no private schools in the Apex attendance area, the project will have impact upon all youth in the area in grades 1-12.

Evaluation Specifications:

At the time of formal acceptance of the Apex Program, word was received that budgetary provisions should be made for an evaluation plan to be carried out by a third party. In the case of the Apex Program, the Center for Occupational Education is the third party which has been selected to perform the evaluation (we also are to evaluate Georgia's exemplary program.) The requirements of the evaluation plan are:

> *An evaluation plan will be carried out by a third party for evaluating the effectiveness of the program. The plan shall describe the steps by which the contractor will:*
>
> *A. Determine the extent to which the objectives of the program have been accomplished,*
>
> *B. Determine what factors either enabled or precluded the accomplishment of these objectives, and*
>
> *C. Promote the inclusion of the successful aspects of the program into vocational education programs supported with funds other than those provided under the contract.* (Department of Health, Education and Welfare, Office of Education, Contracts and Grants Division, 1970.)

In the remainder of the paper the evaluation plan will be described and the rationale for selecting this particular plan will be discussed. One of our purposes in the presentation of this paper is that recently many exemplary programs have been funded and more will be funded in the near future. Presumably, all of

these programs will require evaluation by outside agencies. Although the evaluation system that will be presented was developed specifically for the Apex Program, certain aspects of the evaluation plan appear to be sufficiently generalizable to apply to many other exemplary programs. It is hoped that this paper may serve as a stepping stone to the development of a general model of evaluation which may be applied in all exemplary programs. The utility of such a model is apparent since it would allow the evaluation results of the various programs to be compared, thereby greatly reducing the complexity of identifying the factors that contribute to a successful program, and strengthen the arguments for continuation and expansion of the successful aspects of each program.

Evaluation of the Project

The outcomes of establishing this system of evaluation for the project are threefold. First, evaluation at the process level allows one to monitor the system and its component parts in order to determine if process objectives are being carried out by project personnel and to identify departures from specified procedures. Second, evaluation at the product level enables the examination of the results of the project activities in terms of the physical entities produced and the behavioral changes produced. Finally, evaluation results at the product and process level provide the feedback information upon which decision-makers can base their system of updating decisions and, given a set of objectives that are fixed for a given time period, the set of requirements provided by the U. S. Office of Education can be met. A model of such an evaluation system has been developed by Coster and Morgan (1969, 1970) and with slight modification can be applied to the evaluation of this project. The following section will delineate the evaluation model and later the evaluation procedures will be described.

The Model:

From the twin sources of the individual attributes and the needs of society, the mission of vocational education is specified by legislation, (Vocational Education Amendments of 1968), albeit somewhat by inference. U. S. Office of Education policy papers have produced more specific goals for particular programs (Venn, 1969.) These must be translated into more specific objectives. The specificity and nature of the objectives differ with the level of operation, and it is desirable to examine a wide range of objectives in order to develop those objectives which are most congruent with the goals of this legislation and policy. Once the objectives are specified, the operational procedures and resources required to attain the objectives may then be determined. The operational procedures and resources constitute the technology of education, the combination of human resources, hardware, and software which are needed in an appropriate mix to ensure the attainment of the objectives. Included also in the technology is the know-how by which these resources are mixed and applied. The methodology, the emphases, the curriculum, and the materials all form part of the technology of the educational process. Finally, of concern to project evaluation are the actual outputs, or products, of the program. The evaluation model to be employed consists of five principal structural components:

1. The goals of the program, which are a manifestation of the combined mix of the value, structure of society, and the attributes of the individual, are manifested in legislative intent modified or adopted in accordance with the State plans and local policies.

2. The objectives of the program (desired products).

3. The process objectives (desired processes).

4. The observed process:

   (a) The operational procedures -- i.e., the methods, techniques, emphases, and efforts -- being utilized to attain the objectives.

   (b) The resources -- both materials (including facilities, equipment, and materials) and human (including teaching, administrative, supervisory, service and special staff) -- provided to facilitate the attainment of the objectives.

5. The actual outputs or products of the program, as defined in terms stated in the product objectives of the project.

The static interrelationship of these components is illustrated in Figure 1.

Evaluation may be directed toward an appraisal of the processes of a project; that is, to an appraisal of the operational procedures and the resources available to operate the program and to attain the objectives. Evaluation may be directed toward an assessment of the actual outputs or products of the program. Traditionally, the major emphasis on evaluation has been on the process evaluation regarding such entities as the training and experience of teachers, the hardware and software available for the instructional program, the ratio of guidance counselors to student enrollment, and the size of classrooms and shops while the product of educational programs is oftentimes overlooked.

The assessment of the product of vocational education is more difficult to perform. Yet the crux of the evaluation problem is the congruence between the actual outputs of the program and the product objectives of the program. A prime concern of the decision-maker is the extent to which these two entities are in juxtaposition. The prime function of an evaluation program is to produce the information necessary to determine the extent to which these two entities are in accord.

In order for evaluation to be effective, it should be defined in terms of information needs of decision-makers. Decision-makers, therefore, were introduced into the model. The complete model is shown in Figure 2. The decision-makers have been introduced at two points. First, the decision-maker (the superintendent) has been introduced between the goals and objectives in this model to denote an administrative function. Essentially, this illustrates that the decision-maker is responsible for specifying those objectives congruent with the mission, and harmonious with the goals set forth by the legally constituted bodies. Second, the project director has been introduced at a point between the objectives and the process, or operational procedures and resources, to denote his implementative function.

The function of the project director is to design and facilitate the implementation of the strategies for the attainment of the objectives of this project.

Thus both decision-makers performing administrative and implementative functions will be provided with information on both the products and processes of the project. This information will be expressed in terms of the degree of attainment of stated objectives. In addition, the evaluative function will act as a filter for information obtained about other on-going programs that have similar purposes. Other information needs may be fulfilled through local inputs within the community, and as needed, evaluators may be used to aid in the assessment of the information.

Evaluation Procedures:

The evaluation will proceed at three levels: (1) the process level, (2) the qualitative product level, and (3) the quantitative product level. It should be noted that each level of evaluation corresponds to a level of the objectives.

At the process level, evaluation is strikingly similar to a process in test construction called "content validity." That is, do experts in the area of interest view the project activities as being adequate for achieving the stated process objectives. The evaluation function at the process level, then, is to provide experts with complete and accurate descriptions of project activities that are related to respective process objectives, and to catalogue the judgment of the experts as well as their proposed alternatives. The results of this phase of evaluation will be reported fully to the superintendent, and to the project director and his staff. Condensed versions of the process evaluations and corresponding product evaluations will be published annually as Center for Occupational Education Monographs. The final evaluation report will be incorporated into the project final report and will also be published by the Center for Occupational Education in full. Inputs from other exemplary programs will be assessed as needed, and reported to the project personnel and superintendent.

The product evaluation will consist of comparing the expected results, as stated in the product objectives, with observed results. The reporting procedures will follow the format described above. The remainder of this section will describe how each objective will be assessed, and for the sake of brevity, objective numbers that are listed in the product objectives subsection will be used instead of quoting the objective.

The Objectives

The objectives of the project include both process objectives, which refer to programmatic changes and product objectives, which refer to changes in behavior of the personnel in the total school system.

Process Objectives:

The overall process objective of the exemplary program is to implement and demonstrate the feasibility of a comprehensive occupational education program in a rural school system which will provide for:

1. The intensification of the counseling-placement function in the school system to provide specifically for:

   a. The provision of "realistic information"* about the occupational environment to each student at a level of complexity commensurate with his maturity.

   b. The provision of "realistic information" to each student regarding his capabilities and probabilities for success (in given occupations).

   c. The provision of practice in decision-making to each student with emphasis on increasing the student's proficiency in making "rational" decisions.

   d. The intensification of individual counseling for students immediately prior to leaving school.

   e. The provision of placement services to insure that each student who leaves school will be placed in an entry occupation or in further schooling, and to insure an essential continuity between school and community.

2. The introduction of a program in elementary schools designed to provide specifically for:

   a. The integration of occupational information with basic educational skills and the intensification of exposure to the range of occupations within the context of the level of maturity of the student.

   b. The development of work habits and realistic attitudes toward occupations and work.

3. The introduction of a program in the junior high school designed to provide specifically for:

   a. The integration of occupational education with the academic curricula at the middle grade level.

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* *"Realistic information" refers to the best assessment at the present time, including projections on wage earnings, longevity, and working conditions. Of course, there is a possibility that this information may not be accurate due to the time lags that exist between the gathering and publication of data, and invalidity of our measuring instruments. If our instruments were perfect and our projections completely accurate and rational decisions always desired, it would not be necessary to burden the student with more than a set of optimal occupations for his consideration. However, since this is not the case, each individual should be provided with as many alternatives as is possible in order to maximize his probability of occupational proficiency.*

b. Realistic exposure to the range of occupations in the community, state, and nation, including up-to-date information as to knowledge, skill and training requirements and benefits to be accrued from training.

c. Realistic exposure to the knowledge of one's self, including the beginning elements of understanding the attribute mix of the student.

d. The introduction of the career decision-making process, including the choice and consequence of alternatives.

e. The provision of "hands-on" experience in occupational laboratories, and on-site observation of work.

f. The provision of appropriate skill training for students who have decided to leave school prior to completing junior high school as a "vestibule function."

4. The expansion of the occupational education programs in the high school program to provide specifically for:

a. The integration of occupational education with the academic program at the secondary level.

b. The equipping of each secondary school student who does not plan to continue formal schooling with a job entry skill.

c. The intensification of the counseling-placement function to insure that each student is prepared to obtain employment in an occupation.

d. The expansion of opportunities for cooperative education and work-study programs.

e. The provisions for appropriate skill training for students who have decided to leave school prior to graduation as a "vestibule function."

The process objectives will be evaluated by expert judgment. The processes will be recorded in accordance with these objectives in order that other interested parties may evaluate the attainment of the objectives. These objectives will become more specific as project personnel are employed and the program is established.

Product Objectives

The product objectives include qualitative and quantitative manifestations of behavior which are expected to change as a result of the proposed project.

Qualitative Objectives:

1. To increase the student's interest in and awareness of occupations in his community.
2. To increase the student's interest in academic subject matter areas by incorporating occupational information into the curriculum.
3. To increase the interest of parents, teachers, and students in occupations.
4. To increase interest in employee abilities and attitudes by students, teachers, and parents.
5. To increase satisfaction with curricular offerings.
6. To increase interest in postsecondary training.
7. To increase interest in occupational course offerings at the high school level.
8. To increase interest in obtaining entry level skills.
9. To increase the student's knowledge of the occupational environment and his own abilities.
10. To increase the number of "rational" occupational decisions.

Quantitative Objectives:

1. To increase the number of occupations that a student can name by 50 percent each year.
2. To have each student know the occupations of each of the members of his immediate family (mother, father, brothers and sisters).
3. To increase the number of "good" work habits that each student knows by 50 percent each year.
4. To increase average academic achievement by 5 percentiles each year, as measured by the California Achievement Test.
5. To increase the average daily attendance percentage by 5 percent each year.
6. To reduce the number of grade failures by 5 percent per year without altering academic standards.
7. To increase the number of parental conferences requested by 5 percent per year.

8. To decrease the dropout rate by 5 percent per year.

9. To increase the number of students in work experience programs by 10 percent per year.

10. To increase the number of requests for career guidance services by 20 percent the first year and 10 percent each of the following years.

11. To increase to 100 percent, in three years, the percentage of persons with job entry skills, who do not plan to enter a postsecondary school.

12. To increase the number of students using the occupational information center to 80 percent of the students enrolled within three years.

13. To place all (100 percent) of graduates and dropouts that seek employment within three years.

14. To increase the proportion of students in the high school enrolled in vocational programs by 5 percent per year.

15. To increase the number of course offerings in vocational areas by two courses per year.

16. To increase the number of students applying for postsecondary education by 5 percent per year.

The evaluation system will be employed to monitor and update the system objectives and program performance. Since the evaluation is dynamic, the objectives can only be viewed as fixed, prior to the first evaluation, which will be based on the performance of the Apex project and other exemplary programs, as well as new research findings.

Qualitative objectives 1, 2, 3, 4, 5, 6, 7, and 8 will be assessed by developing questionnaires based psychometrically on Likert scaling techniques. The increases in the various qualities will be evaluated by a pre-test--post-test paradigm, as will all other product objectives. Baseline measures will serve as the starting point against which measures obtained at a later time will be compared.

These questionnaires will be designed for persons in various age groups that are appropriate for the assessment of given objectives. Consultants will be employed to aid in the development of these questionnaires as well as for other aspects of the product evaluation.

Qualitative objective 9 will entail drawing upon items from tests that have previously been developed to measure occupational knowledge, and design a test appropriate for each age group. The knowledge of individual abilities will be assessed by comparing self-ratings with best results and ratings by other persons. The increase in knowledge would correspond to a greater degree of agreement between the self-ratings and the criterion measures.

The assessment of "rational decisions" (qualitative product objective 10) will be limited to grades 7 through 12. The correspondence between stated occupation choice, and the probability of success in the chosen occupations, will be assessed by staff members. If the probability of success is rated below .5, the occupational choice will be considered "irrational decision."

The quantitative product objectives, like the qualitative product objectives, will use baseline measures obtained at the onset of the program as a relative zero point. Quantitative objectives 1, 2, 3, 4, 5, 6, and 7 will be assessed for grades 1-12; objectives 8, 9, 10, 11, 12, and 13 for grades 6-12; and objectives 14, 15, and 16 for grades 9-12.

Objective 1 will be assessed by simply having each student list all of the occupations that he knows and if, for example, he listed ten occupations on the pre-test, a 50 percent increase would require that he be able to list fifteen occupations at the beginning of the second year, twenty at the beginning of the third year and twenty-five at the end of the project.

Objective 2 will be assessed by a listing of occupations of the immediate family. The list will be compared with school records.

Objective 3, like objective 1, will be assessed by simply listing "good" work habits. The goodness of the work habits that are listed will be evaluated by staff members. A simple frequency count of the "good" habits will be compared with the baseline measure to ascertain percentage increase.

Objective 4 will be assessed by using population norm deviations to obtain percentiles at the baseline. These norms will also be used to ascertain the percentiles from which the baseline measures will be subtracted.

The average daily attendance at the high school level is approximately 83 percent. To fulfill objective 5 the attendance percentage must rise to approximately 95 percent.

Without a change in grade policies, the number of grade failures must be reduced by 15 percent of the original number, to fulfill objective 6. A baseline measure will be used.

The number of parental requests for consultation about their child's career plan must be increased by 5 percent per year in order to fulfill objective 7.

The dropout rate in Apex High and Apex Consolidated is approximately 40 percent. To fulfill objective 8 at the end of the program it must be 25 percent or less.

The fulfillment of objective 9 is contingent upon increases in the proportion of students in school supported work experience by 15 percent, compared to baseline measures.

The fulfillment of objective 10 is based on increasing requests for "career guidance services," as defined by focus of the request, by 20 percent over the baseline measure for the first year and 20 percent the next two years.

The fulfillment of objective 11 requires that each person who graduates from Apex High School, and does not plan to continue education, will be equipped with entry level job skills.

Objective 12 requires that 80 percent of the students in the middle grades must "use" the Occupational Resources Center. Use is defined as spending at least one hour per semester at the Center.

The fulfillment of objective 13 is contingent upon placing each student who requests placement in a position within a twenty-five mile radius of Apex, North Carolina.

The percentage of students enrolled in vocational programs is approximately 25 percent. To fulfill objective 14, the percentage enrolled must increase to 40 percent. Vocational programs are defined for evaluation purposes as courses that provide the student with job entry skills.

Objective 15 is fulfilled by adding two courses per year to the vocational program curriculum for the three year period.

To fulfill objective 16 it is necessary to increase the proportion of students applying for postsecondary education by 5 percent per year. Postsecondary education means at least one year of education after the completion of high school.

As was stated before, the project process and product objectives will be reviewed by the decision-makers constantly. Revisions of the objectives are, of course, subject to U. S. Office of Education approval. The changes in the objectives may occur on a semi-annual basis the first two years and an annual basis thereafter.

The plan for evaluation in Apex is not based on a random selection of students since Apex is an intact sample. Each child will be included in the evaluation. A control group composed of randomly selected students from schools identified by state personnel as being most advanced in vocational education practices and most similar to Apex will be selected. These students will only be assessed once at the end of the third year of the Apex program. This method is called a post hoc design.

Before one attempts to develop an evaluation plan, the question of why is the evaluation being undertaken must necessarily be answered. One answer to this question for the Apex program is assumed to be: evaluation is undertaken in order that the decision-maker may be provided with information that can be used to improve his program. This function corresponds to what Scriven (1967) calls "formative evaluation". Formative evaluation is a developmental form of evaluation in which the evaluator's responsibility is providing information upon which judgements about program revisions can be based. Another assumed answer in the Apex

program is: evaluation is undertaken in order to determine if a program, as a whole, is effective. This corresponds to Schiven's definition for summative evaluation. Summative evaluation seems to be the type of evaluation described in the U. S. Office of Education specifications.

Continuing on this line of reasoning, certain other assumptions have been made. The first assumption is that, at best, the Apex program is sophisticated guesswork. That is, many aspects of existing research and development projects have been combined into a single program. Since the Apex program is unique, one cannot say what effect the interaction of the selected factors will have on the program. The second assumption is that even if the Apex proposal were essentially perfect, a certain amount of "slippage" would occur because communication systems among humans are somewhat less than perfect. Hence, formative evaluation will be undertaken, and the program will be revised, or at least reviewed, semi-annually for the first two years of operation.

It is also assumed that the Apex program must justify its effectiveness to the funding agency specifically and to the public in general. This primarily involves the identification of products that the program has produced, as differentiated from those that might be produced without the program. Hence, baseline data and a comparison (control) group is necessary. However, the comparison group we have selected would be expensive indeed to follow throughout the course of the project, therefore we must accept the weaknesses of a post hoc design, with no pre-test on the control. The differences in the two groups will be assumed to be attributable to the program. The summative evaluation is limited to the third year of the program and objectives will be fixed during this time period. The efficiency of the program cannot be determined except by comparison with similar programs or indirectly by expert opinion. Almost every evaluation plan, if not every plan, has been damned and praised by various sources and for various reasons. We expect little better for our plan. For example, Guba (1969) virtually annihilated all current models of summative evaluation. This was followed by Light and Smith (1970) who credited current evaluation methods with possessing far greater power in detecting failure than inspiring success. Stufflebeam (1970) attacked summative evaluation on similar grounds. Perhaps the most damning of all criticism of summative evaluation was produced by Wolf (1969) with his tongue-in-cheek "colloquial method."

> *Social psychological research has demonstrated that decisions arrived at by a group will achieve greater acceptance than decisions arrived at by an individual. This finding is the basis of the colloquial method. In applying this method, one need merely assemble a group of people who have been associated with a particular program to discuss its effectiveness. After a brief discussion, the group will usually conclude that the program has been indeed successful. This conclusion can then be transmitted to funding agencies and other school personnel. It is unlikely that such evaluations will be challenged since they have been arrived at by a group.*

Formative evaluation, on the other hand, has received relatively little criticism. This may be due to the fact that the evaluator serves in an information-gathering capacity and does little in the way of threatening the existence of the program. The main question raised is: Is this really evaluation?

The Apex Plan combines both types of evaluation and might be criticized on the basis that the decision-maker and evaluator lead symbiotic existences for such a long period of time as to preclude objective summative evaluation, yet, realizing this weakness, we contend that if the evaluator and decision-makers consciously attempt to avoid this problem, and since both wish to have the program evaluated objectively, the problem will not affect the evaluation's objectivity. On the contrary, it is contended that through this method the evaluator will be intimately familiar with the program, and therefore, be in a better position to evaluate it objectively.

Finally, note should be taken that resources were targeted in such a manner that each child would be assessed rather than a random sample, thereby precluding a pre-test--post-test design. The reasoning that went into this decision was that if the program was to have maximum effect, each student's individual needs must be met. Project personnel, in order to meet these needs, must have relevant data on each child, rather than the mean of some theoretical population.

In closing, let me enter a plea that a general model of evaluation needs to be developed if we are to approach maximizing the benefits of the exemplary programs. For only by direct comparison of elements that are common to exemplary programs can the efficiency and the relative effectiveness of the exemplary programs be convincingly conveyed to the public. We hope that the model which has been presented here might at least serve as a starting point for the development of such a general evaluation model.

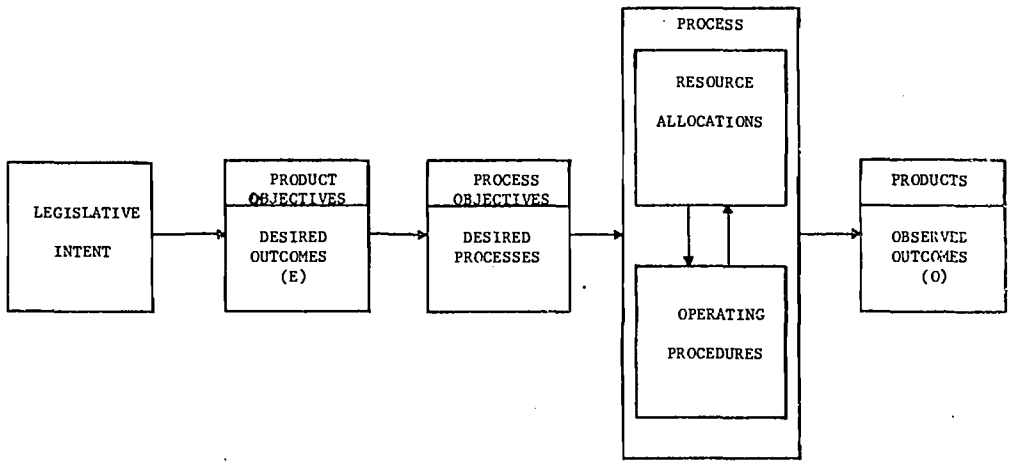

FIGURE 1

THE STRUCTURAL COMPONENTS OF THE EVALUATION MODEL

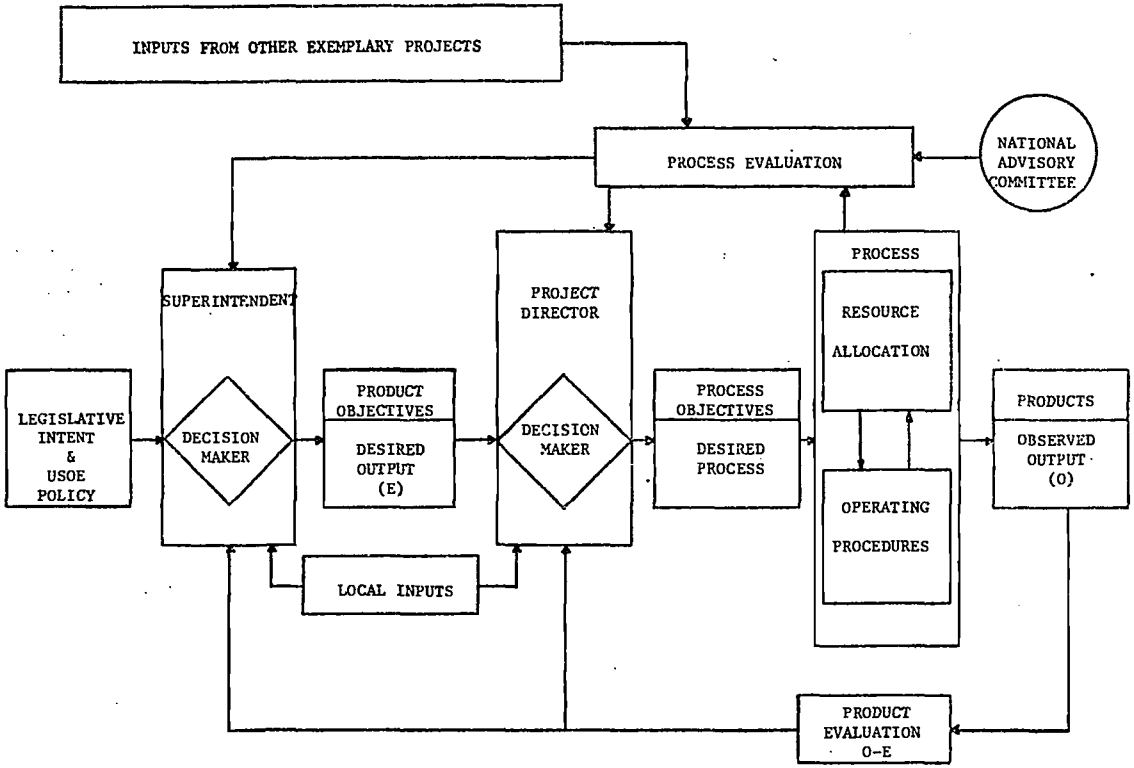

FIGURE 2
THE APEX EVALUATION MODEL

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THE CRAFT OF EVALUATION

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The use of the word "craft" in the present paper is a deliberate one. If one checks the dictionary he will find that craft is "an occupation or trade requiring manual dexterity or artistic skill." It suggests expertness in workmanship. (Let us ignore for the moment the fact that some observers might suggest the obliquitous thought that another definition of craft is ofttimes more appropriate: "skill in deceiving to gain an end; trickery; guile.") To further clarify the term in the context of the present discussion, one may ask: "Is evaluation an art?" It is not, because an artist is a creator, while a craftsman is one who utilizies existing patterns or combinations of existing patterns excellently. Thus, this paper will deal with workmanship, with craftmanship, and not with creativity.

The current emphasis upon exemplary programs in education is part of a larger trend of comprehensive approaches to social problems. A typical program involves a number of inter-related activities of which a formal classroom project is only one of several that are undertaken. From a basic research point of view, these multi-faceted programs offer distinct advantages. Students of social change have long maintained that formal education does not take place in a vacuum; instead, they have demonstrated that employment patterns, customs, attitudes, value orientations, patterns of discrimination, and a host of other variables can be visualized as a system in which change in one area will produce corresponding changes elsewhere. Sound as this approach may be, it poses very real problems for the evaluator. In fact, the evaluator is never without research problems even when the focus is upon a single program in a single classroom. For example, assessing the effect of an experimental learning device in a few selected classrooms can be a tricky undertaking if an attempt is made to control all of the variables that conceivably might be relevant. These problems are compounded when the evaluators are called upon to assess the effects of multiple programs of a varied nature, some with more measurable products than others. Despite these problems of evaluation, such comprehensive projects are not going away. In all likelihood, their popularity will increase not only in the United States, but also in other nations. Such a trend presages the need for evaluation strategies that are relevant to this type of action program.

In the ensuing discussion, I shall attempt to develop three points: First of all, contemporary views of evaluation; second, a rationale for evaluation; and third, a discussion of the translation of theory into practice.

Contemporary Views of Evaluation: Strength and measures evaluation has been defined facetiously as a job, required by authorities on high, that consumes large quantities of time, effort and money, but has little effect on actual practice. Frankly, that may be the best definition around. Thus, when Egon Guba recently scored contemporary evaluation practices in an article entitled *The Failure of Educational Evaluation*, he found even the definition of the term to be inadequate.

There are three views on evaluation in current use. The first tends to equate evaluation with measurement. Historically, evaluation grew up in the shadow of a measurement movement. The science of evaluation was viewed as a part of the science of instrument development and interpretation. The disadvantage of this perspective is that it implies a narrow and mechanistic approach. Evaluation tends to be limited to those variables for which psychometricists and other researchers have developed instruments. The other variables, that is those which can not be measured by existing instruments, tend to be viewed as intangibles, a term which has the effect of saying that because they can not be measured they have no importance. There are parallels in the social sciences. For example, anthropologists tend to describe a primitive group as one which, by definition, lacks a written language. The Maya, however, are usually classified as a primitive people not because they do not have a written language, but because scientists have not been able to decipher their writing. So, they are "primitive."

A second view equates evaluation with determining the amount of congruence between objectives and forms. This concept grew out of the work of Tyre and others and has had an enormous impact upon evaluation. With this perspective came an emphasis on assessment, not only of product, but also of process (i.e., what actually took place in order to produce the outcome). This required the evaluator, or as the case might be the administrators, to develop a set of objectives that were sufficiently operational to assess the required congruence. Both of these definitions can validly be criticized on the following point: data become available only at the end of a long instructional period. The full possibilities of a particular project are thus not only realized, but the form of the definition freezes evaluation as a terminal event. If process data are available, they can only be utilized the next time around. It is too late to use them for the refinement of the ongoing program.

The third view equates evaluation with the judgment of a panel of experts or judges. This viewpoint has certain advantages. For one, the evaluation can be quickly arranged; second, the evaluators are typically experts and can bring a great deal of experience to the problem without being constrained by formal instruments; third, the relationships between several factors can more or less be automatically accounted for, thus avoiding the delays (often long and time consuming) that are associated with aggregating and interpreting data. However, if one has a team of experts or judges, these pitfalls are avoided. There need be, therefore, no lengthy time lag between the investigation and the rendering of the judgment.

The disadvantages of this definition or viewpoint are just as obvious. Information about reliability and objectivity are typically lacking. In fact, the findings of a panel quite frequently are suspect on the grounds that emotional or

personal factors enter into the decision. It is the uncertainty and the ambiguity of evaluations which are based upon this research that lead to a feeling of disquietude about approaching evaluation in this manner.

Each view of evaluation implies a methodology. It is safe to say that each of these perspectives and the methodologies they imply has inherent strengths and limitations. The burden of a good evaluator is to be a discriminating eclectic. That is, to look for ways to use the strengths of each perspective for each particular research task.

In the comments that follow, I shall make some specific comments on this point. As a preliminary definition, I shall define evaluation as the processes that are involved in describing goal-oriented action and assessing its consequences. Put another way, it is the interpretation.

A RATIONALE FOR EVALUATION

It may seem gratuitous to ask "why evaluate?" I suggest, however, that inquiring into the functions an evaluation serves can also be very useful in determining exactly how one shall go about making an evaluation.

In the first place, an evaluation may provide answers to such pertinent questions as the following:

(1) Does the program work? (i.e., Does the program contribute to an attainment of the program's objectives?)

(2) Is the program efficient? (i.e., Is the particular program under study the best way to obtain results or are alternative methods as productive as this particular program?). This question involves the ratio between effort and performance divided by input. It also bears upon the issues raised in the congruence definition of evaluation (i.e., how closely does the action correspond to the objectives desired?).

(3) Is the program adequate? In other words, does the program have an impact upon total needs? For example, a job placement program might successfully recruit and place fifteen people per year. It might do a marvelous job with the fifteen, and from all over the country people could come in to see this project that successfully recruits and places fifteen people. However, suppose 15,000 young people in the same area needed similar help; if the program were measured in terms of the total needs of the 15,000, it would hardly be judged adequate, although it was effective with the fifteen.

(4) What is it about the program that works? For example, it has been reported that one of the primitive tribes in Brazil concocts a liquid consisting of various ingredients into which they then dip their arrows before going hunting; it is quite effective in stunning the animal hit, thus permitting its revival after capture. The tribe puts all kinds of things into this potion -- spiders, cobwebs, leaves from trees, and numerous other concoctions in addition to various herbs. However, not long ago scientists who went to live among these people found

that only one little herb was doing the trick and the other fifteen ingredients were actually diluting its potency!

So, a legitimate question that can be raised in any program is, "What is it about the program that is working?" There may be many things one is doing in his project, things which he may think are very worthwhile, but the evaluation should have answered the question "What is actually obtaining the objectives?" In some cases, success may not depend on anything inherent in the program itself. Instead, success may derive from the fact that the program participants believe that the program will succeed and they begin to cooperate with it, and it is that fact alone which contributes to the success.

Second, an evaluation may be used to legitimize a program. The very life of a particular project may depend on a favorable climate of public opinion, the good will of Congressmen, or a favorably impressed key administrator. The real purpose of an evaluation request from an administrative point of view may stem from the need to say to some constituency that a responsible research team or a responsible evaluator has weighed a project and has not found it wanting. That's all that may be desired. An administrator may look upon a rigorous research effort, carefully developed instruments, and long schedules of interviews as troublesome and potentially risky demands upon an already overcrowded agenda. The researcher should not dismiss this viewpoint out-of-hand as unworthy simply because it is not scientifically pure. It is a fact of political and economic life that needs to be taken into account all through the evaluation. An engineer can over-build a bridge, and a researcher can sometimes provide information that is neither wanted nor needed.

If legitimation is all that is wanted, the evaluation as an assessment by experts may be an appropriate methodology. If, however, the responsible constituency is scientifically sophisticated, if they want pertinent information about the program's process in order to replicate it elsewhere, or if they are likely to demand objective proof, this perspective by itself will be inadequate.

In the third place, evaluation activities may have salutary effects upon the program itself. This is implied in one of the more recent definitions of evaluation (i.e., that evaluation be thought of as a process of acquiring and using information for making decisions associated with planning, programming, implementing, and recycling program activities). If the evaluator shares information with administrators during the course of the project and soon after the program has been completed, he provides them with a basis for judicious decision making.

TRANSLATION OF THEORY INTO PRACTICE

I would like to provide a concrete example, from our recent experiences of what has been discussed to this point, of the translation of theory into practice. As an application, for a three year period beginning in 1967, the Center was heavily involved in evaluating a Federal effort called "Concerted Services in Training and Education (CSTE)," which was a national program designed to develop social, educational and economic resources in rural areas. This assignment provided a research team with valuable experience in translating theory into practice. Evaluating a project such as "Concerted Services" parallels in several important respects

an evaluation of an exemplary education project. In order to demonstrate this, I shall briefly describe the "Concerted Services Project."

"Concerted Services" is essentially a direct-action program which attempts to stimulate area development through coordination of appropriate services at the local and national levels. At the national level, there is a task force and a liaison officer; at the local level, there is a local coordinator with a small staff who tries to bring together agency people and local leaders through area analyses, educational activities, and project development. One of the major responsibilities of the coordinators is to bring appropriate people together for coordinated action. Another task is to initiate new educational and training activities that appear to be indicated from studies of the area. Our task as evaluators was to describe and analyze what was occurring; we were to assess its impact upon the area, and we were then to report periodically our findings to responsible officials in Washington.

The C:TE projects were essentially comprehensive approaches that involved several types of interrelated activities. And I see an exemplary project as being just that. It coordinates other activities, and secondly, it is based upon a broad base of experience.

A PRACTITIONER'S (CHECK LIST) EVALUATION

Without pressing the analogy further, I want to discuss several points which are important from the point of view of a practitioner of evaluative research. First of all, a person should be concerned with the time limits of the evaluation. The information should be available when the decision-maker needs it. Like many evaluators, I came to my first evaluation assignment strongly influenced by experimental design methodology. Hypotheses were to be tested by randomly assigning the population into categories, several of which received treatment, while treatment was withheld from others. Thus I was to have experimental and control units. Until the experiment was concluded, I was to resist the temptation to apply any measures to the control units that were found to be successful in the experimental ones. I was not, in other words, to contaminate the research by releasing any of my findings. For this would jeopardize, at least in my opinion, the evaluation. I am indebted to the work of Daniel Stufflebeam, Director of the Ohio State University Evaluation Center, for correcting this notion. He has correctly pointed out that this application of experimental design to evaluation conflicts with the principle that an evaluation should help improve the program. Evaluation is research, but it is applied research. If the evaluator waits until the program is terminated before releasing his findings, it is often too late to apply corrective measures. We thus adopted the policy of releasing periodic reports to the program administrator; and we were continuously cranking out interim reports, advance reports, and the like, as well as making trips to Washington to discuss findings.

Second, in regard to timing, the evaluation should coincide with the initiation of the project. Very often, program administrators drift into the policy of devoting all of their energy to getting the project off the ground. Then, once things have begun to level off a bit, they say to themselves, "Well, you know, I've got to think about evaluation." That approach poses some real problems. For one,

perhaps the possibility of establishing a base line for a later comparison has been eliminated. All too frequently when a team of evaluators is called in, it is felt that if they are sharp enough they should be able to come, assess what has taken place, and quickly judge whether or not it is a success. I believe that is too high an expectation.

The logic of proof dictates that an evaluator attempt to demonstrate not only what occurs in experimental and control groups, but also what has taken place before and after the application of a particular treatment. Now suppose one is an evaluator and he finds himself in such a spot; that is, he got started on the evaluation after the program was implemented. Sometimes reconstructing the base line is not possible. A great body of statistical data about various populations is collected by government, business and private agencies. Sometimes the memories of informed persons can be relied upon to give a reasonably satisfactory picture of what the earlier conditions were. Other sources of information are newspaper accounts, interviews with reporters, editors, public officials, government agency reports and specialized investigations (such as dissertations). For example, the evaluator may be lucky enough to find out that five years before some person working on a Master's degree came in and did a study of the area and that study can be utilized to develop a beautiful base line, from which one can then show a degree of change.

In the case of the CSTE evaluation, we actually began after the program had been initiated; thus we had to reconstruct a profile of each pilot area from the information sources just mentioned. (I might add that toward the end of the project we found out how wonderful a source of information the statisticians associated with the Employment Security Division of each state can be. For they not only had accurate information, they even worked some of it out into a program for us. We are certainly indebted to these men.)

Third, one must be concerned with the credibility of the evaluation; that is, the evaluation should be believable. This consideration becomes particularly important when the project involves a controversial approach, or if for some other reason, it is likely to have outspoken critics. Internal evaluations have their distinct advantages, one of which I shall mention briefly. If one evaluates a program himself, it is likely that he can apply some of the findings immediately to his own program. However, despite this and other advantages, the evaluation is likely to be viewed as suspect, especially if it can be shown that the evaluators have vested interests or commitments in the project. And almost always, this is the case. So a person says, "Well, sure they found it to be a success because it was their program." In the CSTE evaluation, all the evaluators had advanced degrees in the social sciences and were associated with institutions that were not directly connected with the project. Hiring persons of known competency and impeccable credentials involved paying slightly higher fees, but the product of their research proved to be acceptable.

As it turned out, one of the reports that we developed was critical of a particular department of the state government. That report, once it was released, was vigorously attacked by the head of that department. Had it been produced by a novice, the research might have been rather easily demolished. But as it was, the persons who were associated with it had competencies and credentials, and they

had no vested interest. They said, "This is what we saw," and told it "like it is."

Fourth, what is the validity of the evaluation? In other words, the information provided by the evaluation should answer important questions. The researcher can undertake his evaluation without indulging in needless value judgments if he couches his study in the terms of the program objectives. These objectives, once they have been operationalized, can then be measured in a scientific manner. It may then be necessary to identify the underlying assumptions of certain objectives. Failing to do so can produce an evaluation that could be likened to the measurement of the number of times a bird flaps its wings without attempting to find out how far the bird has flown. And some evaluations concentrate on the flapping of wings rather than giving attention to direction. For example, this would be the case if, in an evaluation of the efficiency with which polio vaccine is administered at clinics, no attempts were made to learn whether or not the project had reduced the number of polio cases in the country. So, does the evaluation really get at what needs to be answered?

The question of research design pops up again at this point. Researchers typically aim at a pre-test, post-test, control group, and an experimental group design. This usually has the effect of demonstrating that "X" is greater than "non-X." Suchman has correctly pointed out that an evaluation design is greatly improved if the evaluation focuses upon specific components of the program rather than on the existence of the program itself. This then involves trying to assess not whether "X" is greater than "non-X," but rather, whether "X-1" is greater than "X-2" is greater than "X-3" is greater than "X-4." So one simply manipulates components in the several programs to find out the source of variants.

To illustrate this point, the CSTE projects were initiated in the pilot areas without a great deal of fanfare. It was felt that if the persons came in rather quietly and began the programs, the agency heads that were already in these areas would more likely work with the coordinators. They would not feel threatened; they would not feel that someone was coming here to get a lot of publicity. During the course of the evaluation, we found that a number of key people in the pilot areas did not know of the existence of the project and thus had not utilized the program because they did not know it was available to them. We called this to the attention of the program administrators, who had to decide whether or not to continue the present policy. Because the programs were attaining some of their objectives, they said "they are successful, they are working". We recommended that when they initiated new programs in new areas, this component of the project be varied. As the program expanded in some of the new units the project would be given wide publicity, whereas in others it would be played down to see if there was any diminution in the effects. All I've said here is that this is an assessment of whether "X-1" is greater than "X-2" is greater than "X-3."

The final point is reliability. The information provided by the evaluation should be based upon indicators which are accurate. An evaluator may be called upon to investigate a project where the personnel are attempting to camouflage a failure. They are trying to do a good job of covering up and they may be good enough at it to mislead even an experienced and astute observer. If the evaluation

is intended to provide information for expansion or implementation of similar programs elsewhere, the program administrators would do well if they were able to structure the project so that its personnel would freely discuss failures as well as successes. This can best be accomplished by providing the project staff with a measure of job security.

Say, in effect, "this is an experimental program; we want you to tell about the failures as well as the successes. It has nothing to do with whether or not you lose your job." Evaluators who call this point to the attention of the administrators early in the project are likely to increase the possibilities of receiving accurate information and, conversely, decreasing the possibility of getting snowed. This proved to be the case in the evaluation of CSTE. The coordinators had been told from the beginning that theirs was an experimental effort, and they were to share all the information with the evaluator. Our researchers had access to the files and all the meetings; they heard about failures and successes. The result was that the evaluator, even though he maintained a distinct role as evaluator, came to be viewed as a contributor to the total program effort.

SECTION VIII

AN EVALUATION SYSTEM

FOR EXEMPLARY PROJECTS

An Evaluation System
for
Exemplary Projects

Dr. Robert Barnes

Coordinator, California Research Coordinating Unit

I have given you a sort of road map, listing the twelve functions of vocational education. The one function I want to talk about this afternoon is Number Twelve - "evaluation." I hope to give you an idea of the way in which we are proposing to break down this evaluation function into the various sub-functions which we believe have to be implemented into an evaluation program.

As we said yesterday, you have to begin with your program goals and purposes. We have talked about specific objectives for two days. They are a must and there is no way around them. After your objectives have been stated, you must then formulate criteria. In other words, what are you going to do to measure whether or not these objectives have been obtained? The reason I have a two-headed arrow going here is because we believe that in the planning process, there must be a two-way flow of information between criteria and the formulation of objectives. The reason is very simple. If you write a specific objective and then you get on to the task of formulating criteria to measure the effectiveness of this objective, and you find that you can't come up with criteria, there is something wrong. Generally, this means there is something wrong with the objective. So, rather than fight with criteria until you are out of your mind, back up and take a look at your objectives. Rewrite them, if necessary, to the point where some criteria can be developed.

Once you have gone this far, then you have a go/no-go situation. In other words, you finally have measurable objectives. Then, you can determine 1) the kinds of data you must collect and 2) the kinds of instrumentation needed to collect these data. Analysis of these data with the results will allow you to compare the projected outcome with the measurable or observable outcome to determine the difference between the two. If you find you have discrepancies, you then want to try to find out the reasons for these discrepancies. If you can determine the reasons, you then have material you need to make decisions; you can then re-examine and reformulate program goals, as well as specific objectives. If you find that you don't have the objectives you need because you can't formulate criteria, you then have to examine program goals and objectives, because these objectives may have faulty goal statements. It may also be that you need additional baseline data to develop specific objectives or overall program goals.

I would like to make a plea, at this point, for all of us in vocational education to place particular emphasis on product evaluation. If there has ever been a shortcoming in evaluation, it is that we have been overly concerned with process. We are wrapped up in process to the point where many of us have neglected the product. We may spend all the time we want on process, but if it doesn't turn out that product, we are still in trouble. I am not saying that you should ignore process evaluation because in exemplary programs you are testing new processes, and trying to develop new ways of attacking old problems and hopefully coming up with workable, reasonable solutions to these problems.

In looking at this business of product, we have to accomplish two tasks. One of these tasks is to identify the learning which must take place before you can meet your purposes, your goals, your objectives. Traditionally, in all areas of education, we can be criticized for our work in the area of curricula development for one simple reason. A lot of our curricula development has been completed for the wrong reasons--for example, a gap in the school schedule. We have gone this route, or similar routes, too often. We have ignored this business of analyzing the learning task which the learner has to accomplish in order to reach the purposes or the desired output or the end product. We have to also take a good hard look at input competencies. What is the level of competency of the learner when he enters this program? We must take this look before we will have a fighting chance of projecting our expected outcome. We also will have a better chance if we can identify input competencies of the learner and the ways and means to attack his particular problem. If necessary, we must completely change the system so it will fit this individual learner. It gets back to the fact that people involved in education can no longer afford to be simply imparters of information. It is too expensive. We have to become learning managers.

In looking further at evaluation, there are a number of areas which have been identified and which must be looked at in depth. The first is what is called pre-program evaluation. Pre-program evaluation is a function primarily of a planning unit, that is, the people who are doing the planning. Here you must get back to this business of writing the program objectives, writing the criteria, and checking them back and forth until you are sure you've got everything wired to produce exactly what you want. In other words, evaluation takes place in the planning phase of the operation. Everyone tells us that evaluation is a continuous on-going function, and well it has been. However, the one area in which we traditionally fall down is this area of pre-program evaluation. Evaluating the planning process, the function evaluation, the on-going evaluation, or whatever you want to call it, has been talked about in great detail. This can be either a function of the project manager or of the contractor. Terminal evaluation is a type that has to be done on an independent basis. Post-evaluation is another area of evaluation which we have ignored. We evaluate the end of the program, everything looks good and so we move on--blissful in our ignorance--and all of a sudden someone comes back and asks about the people you are turning out in your program. Perhaps they qualify for jobs but once hired, can't hold them. Therefore, I think we have to take a look at some of our products and processes at some period in time after we have finished with them in our programs, to see if the bit of knowledge or skill which we have imparted is of a type that will stay with and benefit our students.

Exemplary programs are supposed to have independent evaluations. This means we must go outside of the organization for our evaluation. As potential project managers, one of the things you should be concerned with is this business of preparing RFPs, because, as I interpret it, the responsibility for developing a specific evaluation model is given to the contractor. What should we be looking for when we write a RFP? We've had some experience with them and this is what we have found. First of all, know exactly what you want and be able to spell it out specifically in terms of how you want it accomplished. The accessibility of data is very important to a person who is writing a proposal for you. If you have told him what you want done, and how large your project is in terms of schools, students, etc., but you have not told him about the accessibility of data, it will be impossible for him to budget this thing out, because he will have no idea of how much staff time he will need to expend in collecting the necessary data. You should be concerned about a time line. How much time are you going to grant your contractor before you ask him to come up with a final report? The specification of a final report is something that is many times neglected in writing a RFP. We all assume that our contractors will prepare a final report for us, but it should be specified in the contract. Also, how are you going to pay him? This is equally important to a contractor. Are you going to pay him 20% at the end of the first month, and 60% upon the completion of collection of data, and the remaining 20% upon acceptance of a final report? He must know in the contract how you are going to pay him.

In looking at your requests for proposals and deciding where they are to go, you have a problem. I am sure that all of you are either connected with universities or have connections with universities. A university is one possibility. The other possibility is a private organization. There are advantages and disadvantages to both which I think we should consider. Generally, when working with a university you will contract with people you know. You will know what to expect and you know how they operate, so you have a pretty good idea what the final product will be. Generally the university will have a working knowledge of vocational education and will be familiar with the project on which you are working. On the other hand, there are disadvantages in working with the university which you will not have in working with private companies. One disadvantage is that when you contract with a given department, you contract the services of the total staff. We all know that every university department has outstanding staff, the same as they have mediocre staff, as well as even poor staff. With the university, you are limited to the staff that is available to you for evaluation. The private contractor will usually have a small staff and they will contract with people who are usually outstanding in their fields. I say usually, since this is not always true. When a private contractor gets a contract similar to the one you may be asking for, he can tap people who are on retainer to his company to come in and assist with the job. With the private contractor, you have his full commitment to the project. This is his full responsibility. If you are contracting with a university or another educational agency, you have to remember that all members of that staff have other responsibilities. Therefore, you may have some time lag. These are some things we have discovered in dealing with both universities and private organizations.

The thing you should determine in your own mind, if you go the private contractor route, is whether or not the potential contractor is financially responsible. There are a great many reputable companies, but, by the same token, there are a lot of "fly-by-nights."

Some people have the tendency to use the term "in-house" evaluation for internal evaluation; and after an experience with an external evaluation, they have a tendency to call that an "out-house" evaluation. The reasons for this are many. The advantage of an "out-house" evaluation is the fact that your contractor has no emotional involvement. You are with the program; you are married to it; you can see no faults, literally. Yet, as the result of lesser emotional involvement, "out-house" evaluators are more likely to see your program as the clients or the students will see it. These evaluators use only the written, stated objectives which you have furnished them. If we evaluate our program ourselves, our evaluation tends to become a big white-wash job. Also, an "out-house" evaluator's only responsibility is the task outlined in the contract. But if you evaluate a project yourself, you know what your other responsibilities are and these other responsibilities may interfere with the proper completion of the evaluation task.

Evaluation problems which occur are generally caused by a number of reasons. One reason may be that you lack baseline data; another reason may be the lack of specific measurable objectives and the fact that you expect more than is reasonable in terms of the money you are spending or in terms of your objectives.

You may be asking how much you should spend on evaluation. This is generally where we get into problems. We want everything about our program in the evaluation and we budget about $500 to get it. This is totally unreasonable. With our education development act program, we have specified that every such project must budget and expend a minimum of 3% of its total direct costs for evaluation. A good figure to shoot for is 5% of your project costs.

To summarize, the things about which you must be most concerned, in your evaluation, are measurable objectives. Your objectives have to be legitimate. They have to be legitimate in terms of the society within which the educational system is working. They have to be acceptable to our clientele, to the board of education, to the board of supervisors, and to the governor. They have to be legitimate as well as measurable and specific. We have to have relevant criteria--criteria that are relevant to the objectives, criteria that will measure the things our objectives say we are going to produce. We must have adequate resources. If we do an "in-house" evaluation, we must have adequate personnel who know what they are doing and who have adequate funds and adequate time for the evaluation tasks.

If we go "out-house," we also must have adequate funds to get the necessary job done. Last, you must have an honest desire to have a really good evaluation, and, subsequently, a commitment to use the output from that evaluation. If you get something from the evaluation that doesn't look good, don't just sit there and hack about the lousy data the evaluators collected. Ninety-nine times out of one hundred, it will be your own fault that they had poor data with which to work. So, look at the recommendations of the evaluation and see what you can do about implementing those recommendations.

SECTION IX

EVALUATION

SUMMARY

Evaluation Summary

Dr. Larry Hutchins

Far West Regional Lab

Let me explain today what the Far West Laboratory is all about. We are a development agency. We sort of think development is our thing and we specialize in it. With regard to evaluation, we break it down into three phases. There is a preliminary phase, a performance phase, and an operational phase. During the first year, we concentrate on developing prototypes. We just don't believe that we can develop an entire evaluation right at the beginning. In fact, I defy you to write your specifications for your third year of operation before you even get the program started. You can't do it. I also doubt if you can do it even after the program has been in operation for nine months. So what we simply try to do during the first year is to define what we call the preliminary phase of development in which we initially outline our overall goals and specify the components of the system and then develop prototypes for each of these components.

For example, if you are going to have a television class sequence in the program, you don't try to develop all thirty television programs at once. Instead, you develop two, three, four or five of them the first year to see if the component you were going to use is going to work. You can write the specifications for that much of the program more easily. Then, the second year, we go into complete specifications for each of the components, using the kind of controls over the program which are necessary. In other words, when we are in this phase, we are actually there with a very heavy hand in the classroom, making sure that the conditions we had outlined are being followed. The third year, we go into what we call an operational phase, in which our control over the situation diminishes significantly. In fact, we get out of the system to see if the teachers can operate it by themselves.

We really ask three different sets of questions. First of all, we ask if our goals are worthwhile and are the tasks we have envisioned for the long-range plan likely to work. We ask those questions in the first year to determine if they work for the prototypes we have evolved. Second, now that we have developed them with our control, we must determine if they work under the specifications we want. Then the third year, we step back to see if the things we have set up will work without our control. I don't know if you can do that with your exemplary programs, but certainly if you have to come with a complete specification in the first year for a three year system, I wish you all the luck in the world.

If possible, you should negotiate each year. Also, it might be a good idea to develop an interim kind of report back from the evaluator so you are not faced with a really gruesome report at the end of the year.

I also wish to urge you to please specify the goals of the individual components of your program. You will find that if you can write fairly good specifications for these components and if you can track them periodically, then you can begin to draw a curve and from that curve determine whether or not knowledge is increasing. The fact that you can demonstrate change over a long period of time is a very significant kind of evaluation. Furthermore, this way you can also identify the components that aren't working for you. At the laboratory, we have had really phenomenal luck in being able to determine what will work and what will not work.

To summarize, if you can break down your evaluation into several phases and if you can get the contract officer to agree with this approach, then try to accomplish different tasks in different years. Second, try to specify the different components and try to specify what you want them to accomplish rather than try to simply design the overall evaluation system. That's fine if you can do it, but in the early developmental stages, when you are trying to make something work, you really need to be able to look at the various factors you are developing to make sure that each one of them is first tracking right.

SECTION X

PRESENTATION OF A DISSEMINATION MODEL FOR EXEMPLARY PROJECTS

PRESENTATION OF A DISSEMINATION MODEL

FOR

EXEMPLARY PROJECTS

Mr. Tom Clemens

Acting Director
Division of Practice Improvement
National Center for Educational Communication

This morning, I think it is only fair to let you know to what you are going to be exposed. In order to do this, let me first of all tell about the assumptions upon which I will be working. Let me point out that I am not sure I have any kind of a model to provide you, for a model implies a kind of rationality that may not really exist in the information field. Nevertheless, I hope I do have some suggestions and comments that will be helpful, but even more than this, I hope what I say will stimulate some thought and result in some suggestions from you--because in the final analysis, what happens in the dissemination of information about the exemplary programs depends a great deal more upon you than it does upon me or anyone else within the City of Washington.

My first assumption is that what the exemplary program is really all about is not just doing things differently, but doing things better than before in education. Unless the pay-off from this program results in an improved learning experience for the people of this country, the program is a failure. The program will also be a failure unless the best experience of these exemplary programs spreads to be applied, adapted, and installed in other centers, so that they have a nation-wide impact. The programs must eventually improve vocational education opportunities.

A second assumption I am making is that the best hope we have of systematic and rational improvement of education is through continuing utilization of the knowledge base which exists about education, a knowledge base which is continually expanding. I believe this knowledge base is important to use because one of the ways educational change varies from those in other fields is that such changes tend to be adaptations of knowledge and experience in other settings, rather than just the kind of straight-forward and wooden-head adoption which has occurred in many other fields. It's quite simple for a farmer to adopt hybrid seed corn, but where there are the varying constraints we find in the 17,000 local school districts and fifty autonomous state education agencies in this country, we simply cannot find adoptions that are as straight forward as those in many other fields. So knowledge must be used to stimulate appropriate, rational adaptations of innovative programs to the unique requirements of the educational settings around the country.

A third assumption I am making is that you people represented here (particularly those of you involved in the exemplary programs) are what Evert Rogers would call the "cosmopolites," the innovators, and to some extent the opinion-makers in vocational education practice. And until these innovative and opinion-leading members of a social system adopt new programs and demonstrate their effectiveness, these new programs have no chance of spreading through the social system. In this case we refer to the social system of vocational education. Therefore, I am looking to you to be rational users of knowledge for educational improvement, as well as producers of knowledge which can be used by others in improving their educational programs.

I would now like to share with you what we know about how educators use knowledge, what the characteristics of educators are as users of information, and what kinds of information requirements educators have. Then we will try to draw up some implications about what this means for dissemination programs for exemplary projects. I would then like to talk about you as knowledge users, about some of the things you might do or might want to consider in your programs. Then, since you are also the ones who will be playing the major role in making sure that these innovative approaches spread throughout the educational community, we had better consider also your role as knowledge producers.

Very frequently, it looks as if the only thing that educators use information for is to justify the decisions they have already made, or else to have a good bibliography attached to a proposal for funding by a foundation or the "Feds." However, in a knowledge base field, as opposed to an experience base field, information can be used for a number of purposes throughout the entire process of getting an idea right on through to installing and maintaining it.

The first thing for which knowledge is required is the diagnosis of what your problems are, and then to operationally define them. When you feel your program is not doing as well as it can, you must be able to determine how it is or is not meeting the needs of your clients. In this diagnostic process, you clearly have to rely upon collection of information within your school system or your organization. It is also very useful to utilize information from outside sources. Find out how you are doing in comparison to others, whether other programs relate to yours in some way, and find out what kinds of information gathering techniques and information gathering instruments are easily available for your use. In rational program operation, you need information simply for diagnosing where you are. It is evident that, in using information, it must assist us in developing an awareness of alternatives to current practice. This, of course, is almost exclusively an outside information source. Most of you are aware of the new possibilities which will come *from* the activities of other programs. However, in choosing among these alternatives, you will probably engage in a little "in-the-head" evaluation to decide whether some of the alternatives seem to fit you better than do others. This "pre-trial" evaluation requires information about those alternatives which have been identified. It also requires that you give some thought to what the unique characteristics are within your own educational setting. Having engaged in this pre-trial investigation to select an alternative, you will then engage in a trial of the innovation. Most rational adoptions of new programs are based upon a limited trial adaption prior to the time that it is installed on a system-wide basis. In the trial process, again, you will rely very heavily on internal information sources. Unless

you relate this internal information to information from external sources, you are not going to be very successful in carrying out an effective trial which will lead to an effective education program. Clearly then, after the trial, you have to go through another evaluation, a post-trial evaluation. Here again, you are going to rely heavily on internal information which you collect.

Even if, at this point, you can say your program is highly successful, you still need two more kinds of information. This is also a place where you will have to rely on external information sources. First, you will undoubtedly need information about how you can install this on a system-wide basis. There are a number of questions that may need to be asked at this time. Where can you go to get continuing consultive help to engage in this installation process which is likely to take a year to three years? Where are there training opportunities for teachers who may have to be reschooled? Where are there guidelines for training which may be handled within the organization itself? What are the sources of material and equipment? Unless you want this new program to be consistently out of tune as your situation changes, you had better find ways to insure that it continues to adapt to changing conditions within the school system. These are the kinds of information which you as a knowledge user will require in the operation of your program. It is hoped that you will provide information designed to serve the purposes of other vocational educators. This information should help them diagnose, help them become aware of alternatives, help them engage in both pre- and post-trial evaluation, help them conduct effective trials, and help them maintain their new program.

It is all very well and good to talk about the wide range of uses of knowledge, but if this information is to be provided in an effective form that does get used, it means that we have to relate to how educators normally use information. When we go into our information program, we must keep in mind the characteristics of the user. It is impossible for us to set up a system which expects the user to change. The system must be organized in such a way that the user will naturally make use of the information available to him.

Some things come through very clear about the educational practitioner. He will, first, make use of the most acceptable information source. There is evidence in other fields, such as engineering, history and the military, that the practitioner will make use of the most acceptable information source first, and he will also make use of it more frequently, especially if he thinks the information it provides is very good. He will always go to the most acceptable source. There is a kind of Gresham's Law in the information field; bad accessible information will drive away good inaccessible information. So it is therefore essential for us to make sure that validated, solid knowledge in education is readily available and near at hand to the educational practitioner.

Second, educators want timely information. They don't want something that tells them about the dear, dead days beyond recall. Instead, they want information which informs them about as current a status as possible. Further they want it within real time constraints. You may find that for some purposes a two-week turn around is essential if information is to be useable.

Our third point is relevancy. There are many educational reports which do not appear to have very much relevancy to many educational practitioners. You may have seen some of these reports yourself.

A fourth preference of the educator is that he be provided comprehensive and distilled information. It is unreasonable to expect a busy superintendent, administrator or teacher to be able to read a quantity of technical literature. They simply do not have the time and all too frequently individual technical reports do not appear to relate to what their real concerns are. Therefore, it is extremely important that instead of just having individual reports on individual projects, we also find ways of distilling, interpreting, and packaging information according to the requirements of educators in the field. Another thing that stands out very clearly is that educators rely very heavily on interpersonal communication. They are much more likely to make an adoption decision on the basis of talking with someone who has been that way in the past, or to someone whom they perceive is credible and expert, than they are by reading technical literature. It is therefore extremely important for any effective information system in education to provide for these interpersonal linkages. At certain points in the adoption process, people believe people a lot more than they believe data. Further, people can ask questions. Educators can talk back if they are interacting with you. They can't talk back to a report.

Finally, educators put a great deal of confidence in first-hand information. There is a great deal of evidence that educators, and administrators particularly, tend to make adoptions of those programs which they have seen in operation rather than programs which have just been described to them. Therefore, there are certain characteristics which have to be built into the information system. We have to rely not just on printed media or audio-visual media, but also on inter-personal communication as well as on opportunities for potential adopters to see effective programs in operation.

What should be our knowledge base in education? Clearly we have to have R and D reports. We do need a knowledge base of R and D reports. This is the most mature educational information sub-system at the present time. Through ERIC (Educational Resources Information Center), which currently has a file of over 35,000 separate reports on research and related information in education, a monthly document is published. This document provides access to these reports. Through the Journal of Education, ERIC provides access to the Journal's literature on a monthly basis. These reports, as you know, are available on microfiche and on hard copy from the ERIC document reproduction system.

We also need reports of your exemplary programs and their products. We do not have good or easy access to literature on exemplary programs. We need reports of what kinds of curriculum guides are available for this purpose. This is an area where we have got some work to do. Presently, we are at a "double plus" stage on R and D reporting; we are probably about at a "zero" stage on having reports of validated programs and validated instruction. This is an area in which you have a great deal to contribute. As you feed in reports of your exemplary programs, you immediately broaden this knowledge base. Hopefully, as time goes on, elementary and secondary education and higher education will catch up with you in making these kinds of reports available to the educational community.

We also need interpretive reports of exemplary programs. Remember that educators want distilled information. The communications program of the Far West Lab is doing a very impressive job with some of its integrated information. It is helping educators to know about the characteristics of different kinds of educational problems. In the Office of Education, the ERIC Clearinghouse produces a variety of information analyses. For example, we have PERI kits and if you write to your state agency you will find our which ones are available. There is, however, a need for a great deal more interpretation and distillation of the results of both research and practice in forms which are oriented toward decision making and designed for the use of the decision implementer of the school. This is also an area where we must do a great deal more. One of the resources in vocational education for developing such interpretive materials is found in the position of research coordinator. Some coordinators have done some effective jobs in this kind of interpretation.

Unfortunately, you do not have either intellectual or physical access to the products coming out of research and development activities in exemplary programs which have been supported by the Office of Education. We hope to do something about this problem. We are currently developing a "publishers alert system" in which each project will report those kinds of new products which are developing very early in the game. We can notify publishers and they then will have an opportunity to relate to the project director and attempt to negotiate arrangements to either make it available or help produce it. This program will be operational in this current fiscal year. It should markedly increase the access to products coming out of OE programs.

Also, there is a need for technical assistance for two-way communication. The kinds of technical assistance which are now available to you are your R and D unit reports, as well as the reports from other sources sent to the various directors of vocational education. These perhaps represent reports from some of the other specialists in the state agencies. You can also tie into reports from the universities in your community. However, we have no systematic method of providing technical assistance to educators on a demand basis. This is clearly a place where there is need for a great deal more effort, both at the local and the Federal levels. I would submit that this might be one of the prime areas of need to which you may want to address yourselves in the future. We must be in a position to assure the availability of adequate technical assistance in the process of trying out, adapting, installing, and maintaining effective vocational education programs.

We must find ways of assuring that on-site visits can be provided for less innovative educators so that they can actually see a program in operation without jeopardizing the quality of the program. Such a person must have an opportunity to interact with people who have been through an exemplary program. If we can provide this kind of product information service, I think we will find there will be a much more rapid rate of adoption of tested programs in vocational education. If we do this, I think you will find a marked increase in the rate of quality vocational education throughout the country.

In the process of operating your exemplary program, what might you do to make sure your program is indeed exemplary and efficacious? First of all, there are a variety of information sources you can use. You should undoubtedly be tying in with the ERIC System. One way to accomplish this is through your research coordinator or your state educational agency, where they are set up to conduct searches for you. In some cases they may even provide you with copies of the research reports. You may even want to have a limited collection of ERIC material on hand. ERIC is an important base for you to have but it isn't sufficient in and of itself. You should be signed in with such other information mechanisms as the School Research Information Service and you should make use of the retrieval system for dissertation abstracts. You should also make use of other information sources resulting from your professional associations. If you feel this is important, we in the Office of Education will be happy to provide training sessions for you or your staff on how to use information resources. We will be happy to help you engage in the methods of search and retrieval. If this is of interest to you here, talk it over among yourselves. If there could be a one, two, or three day session for all the exemplary program managers, we would be happy to see what we could do about setting up a training session to help you in making more complete use of available information resources.

It is important to talk to you about your role as knowledge producers. In the work you are doing now, you will be producing knowledge for others. Might I suggest two cautions: Don't engage in dissemination too early. Make sure that you have something to say before you start saying it. You should write a continuing description as to where you are, describing the kinds of activities you are conducting. You should let us know what kinds of materials and programs you have developed which might be exploitable commercially. However, don't simply begin advocating what you are doing until you know it works. If it is not working for you, it is not going to work for anyone else. The progress of educational improvement has been set back more by the dissemination of programs where all they say is, "I tried teaching and found God." It is therefore essential for us to attempt to provide validated information in our dissemination efforts. One of the ways to do this is to look at what you are going to report from the viewpoint of the person who is going to make use of the information. You have already been provided with one report which may be of some value in communicating the results of your work to others. The Far West Lab has done an excellent job of finding ways to lay out the format for reports of programs in such a way that they are of use to the person who has to make program decisions.

Still another kind of report which may be useful is this one published by the Office of Education called *Preparing Evaluation Reports--A Guide for Authors*. It tells you how to develop a report which is oriented toward the user. It describes how to write a decision oriented report. Such a report should help the user make decisions. In order for a report to assist in the decision-making process, it must describe the context of your project. Remember, the reader is going to have a make a decision and he is going to want to know that you are enough like him in order for him to think your program might have some relevancy. He will want to know about the locale of the program. More specifically, he will want to know the population trends, and the economic trends of the school system in which the program took place; he will want to know about the organizational structure of the program and he will want the project's financial picture. He will also want

to know about needs assessment as it relates to the project and he will want to know the project's historical background. If he can have this information, he will then be able to see your project in context and will then be able to see whether or not it relates to his own environment.

If it does relate, he will then want to know more about the program. He will want to know about the scope of the program. He will want to know about the personnel who are involved in the project. He will want to know what kinds of teachers, administrators, and specialists were required and whether or not special training was necessary to get them tooled up for the program. He will want to know about the procedure of the program or project. (Each of these phases of program description are discussed in great detail in the U.S.O.E. guide.)

One of the biggest impediments to change in school and educational systems in the United States is that they do not have any risk capital. Therefore, the question of the project's budget is going to be extremely important for the educator.

In describing your program, how you present your evaluation will also be very important. Your decision oriented user will be concerned with your objectives, what you were trying to achieve, who the participants in the program were and what kinds of measurable changes occurred in this process. That implies you may want to give some thought to what you tell them about how you analyzed your data. You will also have some concerns about how you present the data in a form for people who are probably not evaluation experts. Unfortunately, most of the reports on innovative activities are so concerned with the findings that they neglect all other aspects of program description. They rarely tell us about the major changes in the program, and they rarely give us much information on the data which indicates the reasons for these changes.

The user will also be interested in your recommendations. This is another area of the report which should be oriented toward the user.

Accept the fact that people are going to want to come and see your program in operation. I would strongly suggest you try to defer any kind of site visitation until such time as you know what your program is worth. One of the things that will foul up an exemplary program more than anything else is having large numbers of visitors climbing all over the students and peering over the teacher's shoulder. I would suggest it is advisable to try to hold off visitors for from six months to a year. If you do not feel your program is going well at that point, don't allow them to clutter up your efforts until you are in a position where you can handle them. When you feel your program is operational and you can handle visitors, you probably will need somewhere between one-half and one and one-half resident guides in order to take care of these people. You will want to develop some descriptive materials which they can take away with them. You may want some kind of audio-visual documentation of the program. This might include visual or audio recordings of what actually happened in classroom situations. In some very elaborate cases, there are institutions which have set up one-way mirror observation rooms or closed-circuit TV systems in order to seat visitors in a room or rooms separate from the youngsters in the actual classroom.

Your concerns for your visitors should be threefold: 1. Provide them with accurate information; 2. Respond to their questions rather than telling them only what you want them to know; 3. Keep the integrity of your program by not allowing them to interrupt the program. Some fraction of those people responsible for visitors should be topflight members of your team. For example, a professional should be able to interact with your visitors, answer their questions, and get two-way communication.

You can get yourself eaten alive and your budget can be completely consumed by sending reports to everybody and his brother who writes in and asks for information on your program. When you have agreed as a group on what the nature of your report should be, I would then suggest you have two reporting channels: 1) Directly into the U.S.O.E. Bureau of Vocational and Technical Education, and 2) Directly into your state vocational education agency. You can then handle the requests for information by simply referring them to your state agency or by referring them to the ERIC system.

At the present time, there are only about thirteen state agencies that have any kind of comprehensive knowledge base. However, there are many efforts of this kind being carried on by the research coordinating units. I would suggest that we work to get comprehensive information service in all our state education agencies. Only then will the research coordinating units be able to do those kinds of things you need. They can then begin interpreting, distilling, and tailoring the knowledge base to the requirements of the local educator. Unless we take this approach, we are going to have such an unreasonable demand for information in education that we will never be able to meet it. There is a seller's market right now and it is going to get worse. I would therefore strongly urge our doing everything we can to build a comprehensive information base and retrievable system in the state agencies which can then be used and exported by specialists and experts like our research coordinating units' staffs and other professionals in the state agencies. Only if there is a feedback through the system in such a way that we make sure our information services are relating back to the requirements of the user at all points, will we be able to get education to where it is knowledge-oriented rather than experience-oriented. I am proposing that you can play a part in our goal to provide education with access to all relevant reports in the world. We hope to do this in a few years and it is closer than you think.

It is even more important to have on hand an array of refined information products. We want a system where each practitioner does not have to do the job all by himself. We also want a system where the user will have help in applying knowledge through technical assistance consultation. However, in order for this to happen, we need to provide useable information when needed and where needed.

I have proposed some ways in which the information emerging from your programs can be useable. We will need a national network of information systems to accomplish the task. We will work on it; we will also need your advice and assistance. It will have to be operated by skilled people and we don't have enough of them. We are, therefore, going to have to make sure that we get double duty from those people who are available for the job. If they are provided the proper resources, it will be possible for us to have a changing and more responsive education system--a system which is moving toward the attainment of specified goals much more effectively than it has moved in the past.

SECTION XI

GUIDELINES FOR DISSEMINATION OF

EXEMPLARY PROJECT INFORMATION

GUIDELINES FOR DISSEMINATION OF EXEMPLARY PROJECT INFORMATION

Dr. Larry Hutchins

Far West Regional Lab

You have had models thrown at you for a few days now and they are probably running out of your head. I guess every speaker has his own model, and I'm not going to be any exception. So, let me start by putting a model on the board simply with a few letters. "RDDPC" means "Research, Development, Diffusion, Practice, and Consumption". I think it is meaningful to begin to break it down into these components. Let me ask you, "Where do you fit into this cycle?" Researchers--I don't think that by any definition you see yourselves as researchers. There is an agency within the Office of Education which, I understand, will be supplying money to people in this area and perhaps you in another capacity will fulfill that role. Nevertheless the project you are operating is not really a research project. A research project is designed simply to create new knowledge and absolute truths. Somewhere, beyond this point, you are going to act on a lot of ideas you hope are truths. I don't think you are going to have the opportunity, money, or resources to demonstrate which kind of a truth with which you will be working.

Your responsibilities begin somewhere after that. Just to make it a little more dramatic, let me cross the "R" off. Let me go to the other end now and discuss "Consumption." The consumer in most educational environments is your student. And I'm going to cross that off, too. You know it's very funny that they are the last people to get involved in a project. They are the ones who are presumably going to benefit, but they are never involved in the planning; they are never asked what goals they have. This is a sad state of affairs, and in some places it is changing. We do a lot of reviewing of educational development and as I cross the "C" off, I would like to comment on one phase which I think can have a potential for your project if you are willing to entertain the idea. Individualized instruction is one of those catchwords today, but it is certainly something of which you all have heard. It's a very complex thing though; think about it for a minute. Individualized instruction has at least two kinds of components into which at least three or four elements may be included and you can put the thing together as many ways as possible. You can define goals for students, you can define the method by which they are to learn and you can define the rate or the timing by which they are to undergo this learning. Who defines these things? Traditionally, it has been the teacher and the school system. In individualized instruction, this changes; the student increasingly has a role. There are programs today which do allow the students to select goals. There

are programs which allow a student to select his own methods. The instructor gives him an objective which he prefers. Then he must go out and do something, that is, "learn by doing." There are students who learn by doing through reading and prefer that as a mode of instruction. They don't all have to be out there working with their hands. Just exactly what involvement are you going to allow the consumer in your system? I wanted to talk to as many of you as I could to ask about what you are doing in your projects and of the few people I did talk to, not one of you mentioned that the consumer was going to be significantly involved in selecting his own goals, his own methods. I hope that was just an oversight, and I hope that it is not true. But it is unfortunate that in most projects, in most traditional school settings, we cross the "C" off in the planning process.

Well, that leaves "Development, Diffusion, and Practice." Certainly you are in the practice end of the continuum. You all will be working with school children, in school settings, so that I can't completely cross the "P" off. But as I partially cross it off, I would like to make one comment. As I understand it, a number of you are going to try to work first of all with the regular curriculum. You are going to be in for a rude shock if you have never worked with elementary and secondary teachers. You are going to have your hands full. It's not because they are stubborn, not because they are not knowledgeable, it's just that they need help. The average elementary school teacher is overwhelmed; she has thirty little kids, and it's all she can do to manage the day and come out sane at the end of it. And she wants to get home at 4:00. She may have the best motives in the world to help, but she doesn't have the time. So unless you can put into her hands pre-planned, pre-packaged material, you are not going to have very much success with her. She will do whatever you want her to do if you give it to her in such a way that she can work it into her schedule without a lot of upset. Again I do want to say, they do want to help, but they have to be given things in a specific way in order to do it.

So now, what I'm really getting down to is that you are really responsible for both development and diffusion. When I first started talking with you, I did not hear the kind of things I was hearing this morning. "What's our obligation to diffusion?" I think most of you saw this as an opportunity to get some money, bring it into the local school district, make some improvement in what you were doing, and you hadn't spent a lot of time considering whether any other school system was going to benefit from it. If you are really going to be responsible for diffusion, you've got a special obligation to this task, one that is not going to come easily and one about which we don't know a great deal. Nevertheless, we do have an obligation, and I believe that if your programs are to be successful, you are going to have to live up to this responsibility.

I'm now down to the body of my speech which addresses itself to "Development and Diffusion."

Let me talk first about Development. There are at least three kinds of development which are meaningful to talk about. The first is the kind with which you are all familiar; it's kind of a commercial textbook development. They have been developing products for use in the schools long enough that they know how to do the job pretty well. You may not like what they develop and you may want to change it,

but they have the know-how. I assume that most of you are not going to go that route, so I will dismiss textbooks. There are two other kinds of development. The kind that has been best known to us up until recently is what I call the "Do-it-Yourself" development. This is development on the part of the local school district; this is developing your own program. I'm going to sound a little negative because I don't think this has worked out very well. Title I has sunk $6 billion into this model of development, and we don't have one thing to show for it. Maybe a few school districts have discovered a few things, but basically it's $6 billion worth of expensive development that has really come to nothing. President Nixon, in his message on education, said this, "*We must stop letting wishes color our judgment about the effectiveness of many compensatory programs, when despite some dramatic and encouraging exceptions, there is growing evidence that most of them are not measurably improving the success of poor children in schools.*" Recent findings of the two largest such programs are particularly disturbing. We now spend more than $1 million per year for educational programs under Title I of the Elementary and Secondary Education Act. Most of these programs have stressed the teaching of reading, but before and after tests suggest that only 13 percent of the children of such programs improve their reading significantly. Thirteen percent actually appear to fall behind more than expected, and more than two-thirds of the children remain unaffected, that is they continue to fall behind. In our Head Start program where so much is invested, we find that children enrolled for the summer achieve almost no gain, and the gains of those enrolled in the program for the full year are soon almost matched by their non-Head Start classmates from similarly poor backgrounds. I don't have much hope for local school "Do-it-Yourself Yourself" development. I think there are some encouraging reasons why the program you are involved with could be an exception; i.e., that both the Head Start program and the Title I monies came with strings unattached, and if you feel a little shoving and pushing from Washington about evaluation and line items and some other kinds of restrictions, these are the reasons they are there, because they didn't feel the "hands-off" gift of money came out very well.

Why didn't they? What is it that you could do better to insure that this doesn't happen? Let me at least talk about two reasons why I think those programs failed, and why you will have to make a difference if you are not going to fail. One is inadequate evaluation. I really don't have to talk about that; it's been the subject for the last two days. It is enough to say that the Title I programs simply haven't been able to demonstrate that they did anything that worked.

I was a little hot under the collar about this, since we spent quite a little bit of money on testing. However, 3% is not very much money for evaluation. A project has an obligation to demonstrate it can do something to improve things for kids and to demonstrate that it can be used in other schools. If this were just for your own local school district where you were only accountable to the local people, 3% might be enough. It is not going to be enough if you are going to have to demonstrate to the rest of the country that your project was worthwhile. This figure may floor you, but we spend 50% on evaluation. No program we manage in the Far West Lab receives anything less than about 50% of the effort for evaluation. Three percent is not very much; I don't think 10% is too much at all. Another reason these "Do-it-Yourself" projects have failed is that they haven't concentrated enough on exportability. They haven't concentrated enough on what we have to do to make it work in somebody else's school district. There are a lot of things the average developer doesn't think about unless he has had the experience of trying to

export his project to someone else. Teacher education is certainly one of the most important areas. You can go in and handle the teachers and have your own training session to teach them. But what happens when the next group comes along and they want to do it? They can't very well go in every time the teachers want to do it and teach them how to do things. You've really got a separate program to develop, and that is the teacher education program. If they are going to be involved, it isn't just developing the materials the teachers use; you've got to develop a program that will teach them how to use those materials. So many times the materials are not in a form that is exportable; they are loosely bound, a piece here, a piece there, and it's hard to gather these things together and take them to another school district. That school district can take your idea, they can spend the same amount of money doing the same things you did. But if your program is really going to have payoff, they shouldn't have to go through the labors you went through. That's what you were doing it for the first time, to develop the technology, to get the pieces together in a way that they can pick them up. I think that this is the area in which your obligation as "diffusion people" becomes very important.

There is another type of development happening--we call it empirically based development. Notice we don't use the words "research based." Research based means, to me, that there is a good theory, a good idea you can pick up and run with. This is not the case today, for we sunk a lot of money into educational research, but not very much of it has the kind of practicability you need to operate programs. So you are going to have to do it yourself. We therefore prefer to talk about empirically based development, because most of it you are going to have to do for yourself and demonstrate for yourself. You are not going to be able to rely on a lot of research. That kind of stuff just doesn't exist for the developer. It hasn't been until very recently that we have recognized the need to separate the ideas of research and development.

Yesterday, in the presentations on evaluation, some of the hints of the differences between research and development came out in terms of evaluation. Most of the standard techniques the researcher knows for evaluation won't work for the developer. He has different problems and he needs different tools. I would hope that with the research dollars in vocational education, one of the things Washington, D.C. could focus on is the development of some research of how you evaluate in the field of development tools. You don't have the time or money to develop them yourself. We've got to get the guys who are complaining about the situation, who supposedly are responsible for evaluation, to get off their duffs and come up with some better tools.

Empirically based development means you go out and test. I got up yesterday and made my little spiel about evaluation and about dividing up the development process into at least three phases. We figure that to develop one hour, one instructional hour, well may cost anywhere from $10,000 to $25,000, and I think that may be an underestimate. Divide up your money into that and you can see how few instructional hours you would probably be able to do really well. And if you are going to be this kind of developer, the thing I would urge is that you keep your project small, and don't try to be everything to everybody in the school district. Keep it small. Washington will understand. You don't always have to do everything you told Washington. We are pretty much adjusted to Washington's changing plans. If

you can demonstrate why you have to change your plan, Washington will understand. And if it is in the interest of improving your accountability, they are flexible guys. There aren't a lot of formal guidelines for this kind of development. There are a number of organizations around that have been in this business a lot longer than the Far West Laboratory. They have built up quite a lot of experience, and of course we hired those guys to come and work for us so we could rely on their techniques and abilities.

Another phase in the developmental cycle focuses on products. Products which are, as I said before, exportable. Let me talk just a little bit more about the products that work and the ones that don't. You've heard the name Roger bandied about, and I'm sure coming from vocational education, you are familiar with him as a researcher and developer in the fields of agriculture and sociology. He had a number of things to say about what it is that makes a product successful and I'm kind of playing with his words a little bit. I think his ideas are just as good today as when he developed them. First, your program used to be divisible. If somebody has to come in and adopt the whole thing the first time around, he is going to think twice about it. Fix your program in such a way that he can first try it out in a little way. He doesn't have to take the whole package. Let him be able to first adopt components. You've got a lot of other components in the system you are developing, but keep it small. It's nice to have an integrated system, one that works as a whole, but if you are going to have success as diffusion people, one of the things people will want is to be able to pick and choose from among your system. It can't be complex; if it is complex and hard to understand, people won't buy it.

We must learn how to advertise. We may have an obligation not to have any sort of hidden message, but nevertheless, there is nothing wrong with speaking clearly. We must develop a perfect example, and take all the garbage away and talk to a person in the language he wants to follow. It's got to be communicable, it's got to be understandable. One of the ways you can make it communicable is to make it visible. If it's going to be guidelines, dress it all up in a little booklet and call it a manual. Don't leave it in a little sheet like this one I'm going to pass out to you. Dress it all up a little better. Mine will never get used and I know it won't, for I didn't have time to dress it up. But if your products are going to be used, you are going to have to put them in a form people can see, feel, touch and smell. So I therefore urge you to keep them in a product form. It can be a process, you can package processes very easily. But it's better if it can be visible and if it can be demonstrated in some way. It's got to be compatible with what people are now doing. This is hard, for you want to change things and that's what this program is all about. But if you change everything, people are going to resist. Find out what they are doing now, and say "O.K., how can I take the fact that they do it this way and play on that fact and turn it into something else?" You can change them but give it to them in a way that they are now accustomed to using.

Last, but not least, to make your developed product as exportable as possible, you have to show the relative advantages of your product. People must be convinced that what you have to give them is better than someone else's product. The farmers did not adopt hybrid seed corn until they could see the increased production because of it. People must see why a product is better. I think educators are pretty smart. They know what works and what doesn't work, and they can see through someone's

fancy research and these demonstrations and they know whether it will do a better job for them or not. I think the very fact that you all are out there developing programs suggests that you've got some kind of estimate as to whether they will work better or not. This doesn't mean that you can't add to that judgement. But unless you can show that it is going to be something substantially better, you are not going to have much of a chance of having it widely adopted.

Let's suppose now that you are this ideal kind of developer and you spent your $25,000 for an instructional hour and formed a project and you've got it all ready to disseminate. How are you going to diffuse? That's really the thing I want to talk about this afternoon. There are lots of channels. One of the ways I haven't heard anyone talking about (but I don't see why it won't work) is through commercial channels. Why can't you clean it up and sell it to a publisher? You can make a little off of it, the school can make a little bit off of it, and it will be widely distributed because the publishers are very good at seeing that things are adopted. So the commercial channel, in my judgment, is a very useable and a very realistic route to go if you want to see that diffusion occurs. If you do go that route, I would like to make a few suggestions. U.S.O.E. has really had a fantastic turnabout in their attitudes toward copyrighting. It used to be that you couldn't get a copyright on anything that was done under a Federal grant. The theory was that you put it in the public domain so that everybody could use it. That was good in theory but it just wasn't very good in practice. The publishers must have that copyright to insure that someone else doesn't come along and take the same idea. They've got to be fairly sure they can spend the money, and it does take quite a little bit of money on the part of the publisher to get this thing all packaged up. They've got to be able to protect that investment. You get the copyright and in a sense you assign that copyright to the publisher. So if you do intend to go this route, one of the things you will have to do fairly early this year is to notify your contract officer of your intent. You can get a developmental copyright to protect your material during the process of development so that someone doesn't lift it. More than protection from lifting, such a copyright will insure that if it isn't any good, it doesn't get diffused too widely. This is something you will have to work out with your contract officer. If you are going to go that route, you will have to worry about the clearances for your material. Most of the projects I've heard about are going to pick up a little bit here and a little bit there. If you start picking, and you pick up someone's copyrighted material, you are never going to be able to interest a publisher in what you have because he can't deal with all those tangled alliances with other copyright holders. This is a whole big mess, and you are going to have to begin thinking about it now.

The nonprofit-making channel is to utilize the existing apparatus in U.S.O.E. The Government Printing Office is certainly a channel you can go through. Sometimes it takes an arm and a leg to do something, but if you can get your contract officer to exert that kind of pressure, they will publish your materials. You can also sort of sell it yourself, that is, sell it through ERIC. I'm not going to urge that route on you. My personal feeling is that if we are going to have programs widely distributed and adopted, we have to go through a commercial channel. There is another facet to diffusion along with a choice you have to make. What kind of media are you going to use? I heard some of you talking about television. I don't know if you know anything about TV or not, but the technical hassles, and the

compatibility among tape recorders are just - wow! If you are going to try to distribute anything via videotape, you are going to have your hands full because no one's machine will take the tape from anyone else's machine. Someone fortunately came up with an audiotape which is somewhat compatible. However, except for large commercial machines, almost no one's machine is compatible with anyone else's. If you are going to go this route, you will probably have to use film, because everyone seems to have 16mm film projectors. And there, of course, you have another problem because if you put the material originally on videotape and then try to transfer to film, you've got a black and white product of inferior quality. Your choice of media, particularly if you are going to go the AV route, is going to be difficult. Don't let any of these media salesmen come in and sell you some fancy gadget that coordinates filmstrips, etc. They have them, but no one else has them. You can sell it to one guy because he has the machine but no one else has it. So keep within the standard 16mm film, 35mm slide range. At least half the schools do not yet have the 8mm super projectors. So you see you can't even go that way if you expect to get wide distribution. You also have problems when you get to facing your decisions about how you are going to diffuse your project or whether you are going to have one-way or two-way communications. The easiest way is, of course, one-way, and simply send it to the guy. But this morning I think your common sense tells you there are better ways. You can have conferences, you can have people come in and look at your project. This is one of the ways U.S.O.E. has been handling diffusion-dissemination. They set up one of these model projects and then have people come visit it. The people who come visit get a lot out of it, but what about all those other people who didn't or couldn't come? If we are really going to get an effective diffusion exchange in the educational system, we are going to have to get to everyone in that system. So, you've got to decide whether your diffusion channel is going to be one-way or two-way, and all I can do is urge you to think about the most effective choice you can possibly make.

Let me show you how we are handling one possible model which can be used for this purpose. The model I'm going to demonstrate to you is through a commercial channel. It's a multi-media package and it's a one-way package. It's simply a box, this box. This was our first effort at disseminating information about an exemplary program. We started about two years ago in the field of elementary science. Science has been lucky. They've received lots of money for quite a while from NSF. It's a little easier field with which to work. There were six elementary science projects that had been funded to the tune of $10 million. So what we did was package information tools to describe to educators what they could adopt that was exemplary in the field of elementary science based upon the exemplary programs which had been funded by NSF. The package has the following characteristics, and these are characteristics I think you should look to when you are involved in developing your dissemination product. First, it's got quality control. We didn't want every Tom, Dick, and Harry's program to get into it. We had some very specific requirements that only certain kinds of programs could get in here. We have what we call an educational development identification form. I will give you a copy. We are now in the process of mailing out 2,000 of these forms to educational developers. We are rating these developers. I thought it might be interesting for you to get an idea of the kind of questions we asked. Not every project has every one of these features. But they have to have enough of these features to begin to look like a development which we think has a chance of surviving in the schools.

The objectives of the development project are described rigorously. They use performance objectives. A full-scale feasibility study using a sample target audience of the proposed project must be carried out before the initiation of the proposed development. The materials and procedures developed by the project must be tested under control situations which ensure that the conditions prescribed are proper and that the conditions were followed. The material and procedures developed for the project must be tested in settings which the developer did not control and where the user was free to use the product in any manner he saw fit. The product or procedure resulting from the project must have undergone successive recylcing.

I think this is one of the most encouraging things I have heard about your proposals. You have three years and you can recycle and change your project the second and third years to make it better. It's impossible for you to get it right the first time. You must have a couple of trys at it before you can get it right.

Quality control is one feature on which we do try to insist. It's multi-level. Someone said this morning that a superintendent or a principal does not have time to read a thirty-page technical report. In this project, we have three levels of information. There is what we call a summary level of information, starting essentially with things like these charts that show comparative differences among programs. A chart is a fairly simple way to communicate to a fairly high level person. He can spend just a few minutes and get the main message (or messages) out of what he is reading. We also have short summaries, no more than one hundred words, so that some kind of an easy, quick run-through of the project can be handled in five minutes. If it doesn't interest the reader in that five minutes, he will put it aside and not look at it any more. At a second level, we have what we call audio-visual filmstrips. These are descriptions which take about twenty minutes. They show what the program looks like in action and they show what the material looks like. It is very much focused on what happens in the classroom. In our little box here, we have a one day summary for each of the six projects, a chart that compares them, and audio-visual filmstrips which are particularly suited for a little more intensive program evaluation but nevertheless not really the kind of thing you get in a written report. I think you are going to find yourself confronted with a lot of visitors. You may want to rely upon this means of two-level dissemination where you can give the visitor a one page handout by which he can get a picture in his mind before you start briefing him. You can get a great deal said on a fifteen-minute filmstrip and you don't have to show the visitor everything.

In this particular package we also have a report or a description of each of the programs. These reports are developed by the Laboratory; we wrote them for the projects themselves. We wrote them according to a specificaion I will pass out to you. It concentrates on the nitty-gritty of the classroom activity. Last, we also have enclosed a history of the project. We put the history last in our system. They do like to have it eventually, but only when they get around to it.

Even if you can't do this filmstrip thing and all the other things, when you are writing your final report write a one page abstract which will be the first page in the report. Then write a three or four page summary of the whole project and insert it behind the abstract. Don't put it in last, put it in first. Then put the technical report behind the summary. The reader will really appreciate this. Try to have the information available at several levels of detail.

I've already showed you a multi-media approach to diffusion and I think there is a more satisfactory one, particularly when you are working with groups. For example, we now are developing packages in the area of elementary science, secondary social studies, early childhood education, individualized instruction, and we are hoping to focus next year on ecological environmental education. Not all these are multi-media, but they are the ones which are the most successful. We were working with a field test group on the early childhood project the other day and most of the people at the consumer end of early childhood education speak a second language. It's not English, so in our early childhood education program there is a bi-lingual system built into the information. If you have a vocational education project in an area where bi-linguality is a feature of the area, I recommend strongly that your material be in two languages.

One of the features of this system is that the characteristics of this box we are using is that it is mailable. Again, this represents the one-way link in communications rather than the two-way link. We decided that if we were really going to spread the word about six new science programs to 20,000 school districts, we were never going to do it if we had to go to every school district. The only way we could get it there was to go through the mails. That's the reason we have filmstrips. If we had to have slides and a big carousel, it would never go in the mail.

I have heard proposals about how the educational field might disseminate information about their exemplary programs and vocational education. I would like to present an alternative to these previous models. I don't want to appear to be knocking other models such as ERIC. I think it has its role, particularly within the research domain and between the research and development domain. There is no place else you can go now to find out what is going on in research. However, I don't really think ERIC is going to solve the problem with regard to getting the information from you to the schools. When you look at who uses ERIC and how it functions and how it is organized, I just don't think it is going to do this job. I think there are some other things it could do.

Just suppose you are all sitting back at your desks in your offices and suppose you are not running an exemplary project. Suppose you had on your desk a little box - this is called Granny's recipe box - it's just a little 3x5 or 4x6 card index, and in this little box are cards. Each of these cards represent one of the 250 best exemplary programs in vocational education. Each card includes a project name and a brief description. Let's also suppose that around the edge of this card there were little punctures keyed to a manual you have to describe these holes. These holes represent variables in the exemplary programs - type of project, grade level of project, etc. In this manual you might have a little card attached which you could send off to get more complete information about the program with a detailed evaluation report on the project. Because you are sending for the information based on your needs, you are likely to get information that is most likely to be of use to you and you don't have to go through the rest of the cards.

Let's suppose you could get a box like this and it could be individually tailored to your needs. The system isn't very complicated and it wouldn't cost a lot of money to develop if it was done on a nationwide basis. You can't do this yourselves. I don't really believe that the state educational agencies have the kind of money or resources to do it by themselves. What I am proposing is that

you could convince the vocational education branch of U.S.O.E. that 1% of the money they put into exemplary projects ought to be spent in developing an information system so that at all times you have something you can look at. I think a system like this could be developed; I think it could be operational.

Incidentally, when we field tested this box, we found that since this box was oriented to decision making in order to help middle level school management people make decisions about what they want to do to change their elementary science program, 60% said they could get all they needed to know to make the adoption decision out of that box. Ninety percent said that it was a much more effective way than paying $150 to a consultant to come in and then find that they still didn't know anything about elementary science education. Therefore, I think this type of a model can and possibly would work for disseminating information on a vocational educational program.

Let me stop with one more little comment. One of the things which make people nervous about this box is that someone else wrote it. It's sort of like hiring a third party to do your evaluation. As an independent agency working with a number of other agencies whose products were represented, we were suspect in the same way you are going to be suspect to the independent evaluators. Again, with pride I want to say that we have had more compliments about how well we described the project from the project people themselves than we could ever have hoped to have. I think it is just because it helps to have someone from the outside come in and say "this is important," "that is not important," "people want to know that," "tell them this or that." We are not science people and we are not social studies people. Our job is communication, and I honestly believe it helps to be just a little bit stupid in our role. Because our heads are pretty thick, you've got to explain a thing pretty well if we are going to understand. If you can explain it to us, I think, then, we can do a good job of describing it to other school people.

I propose this to you as a model. I do so recognizing that I seem to be implying that we would like to do it. I don't really think that we have to do it. There are a lot of good agencies around that could do this very well.

Let me close with a little story of a farmer who had just hired a new man. The first day he sent the man out to cut some weeds along the fenceline and he figures it's pretty much of an all day job. He came back about noon to check on the man and the work was done. Well the next day, the farmer had a bunch of wood to chop and so he sent the man chopping wood and again he thought he had given him enough work to keep him busy all day. The farmer came along about 10:30, and the work was all done. The third day, the farmer thought, "This guy is great, how lucky can I be! I don't want to push my limit so I'll give him an easy job today and I'll not even come back until 4 o'clock so if he wants to sleep a little bit, he can." So, the farmer sent the man down into the cellar to sort potatoes and he had to put the good ones over here and the bad ones over there. So about 4:30 the farmer comes back and here the guy was, still sorting potatoes. How come? Why? The hired hand said, "Decision making, that's tough!"

Well, you have some really tough decisions to make and I think it is going to take more time than you realize. Good luck in your endeavors.

SECTION XII

A MANAGEMENT MODEL FOR EXEMPLARY PROJECTS

A Management Model for Exemplary Projects

Dr. Stephen Knezevich

Professor of Educational Administration
University of Wisconsin at Madison

You have been a very patient, dedicated group. You have stayed with the Institute program right to the end. I've heard some very fine presentations thus far. It will be a challenge indeed to come up to the standards set.

Thus far, your concerns have focused on what might be called tactical problems in administration. This includes processing kinds of information that might be generated during the project, coping with the excitement and interest that may come along as a result of being involved in an exemplary project, and deciding how you might diffuse findings related to your projects. I should like to speak in a much broader context. At the same time, it is recognized that project administration or program management represents a kind of a microcosm, a subset of the total that is known as administration of activity. I submit that administration is a means to an end. It can have rather significant and profound impact on the success of the project; as much as the substantive content or the quality and validity of the research behind it or the design selected for the project. Projects can succeed or fail because of a lack of administrative capabilities. Administration, then, is not an incidental thing to an exemplary project. Rather it is something vital to the totality known as school administration.

What is called project administration, or program management, is relatively new in education. As a matter of fact, if you were to search the ERIC descriptions for references to project administration, I suspect that you would pretty much come up with little to read. There may be one or two things, but I would be surprised if more existed. About a year ago, AASA came out with a publication called Administrative Technology. We almost devoted some pages to project management. It was to be introduced at the tail end of a chapter I was writing on program budgeting, PPBS. The decision was made that it really wasn't intimately related with PPBS. There were some similarities. One could adapt some of the concepts to PPBS or systems administration in general.

In contrast to the small amount of project management in education, a considerable body of literature on the topic exists in industry. Special projects are used to develop an unusual or innovative product. Dupont had a special project staff which probably launched nylon and corfam. In the military, it's quite common to find new weapons systems being developed via special project teams. Thus, there was the Polaris missile project, the Nike-Zeus project, etc.

Project administration, or program management, is relatively common in the field of business as well as in the military. We find that it is a particularly useful device for the development of new approaches. And I submit that project administration may benefit education just as much. Within the next five to ten years we will discover more concern, a greater body of literature dedicated to the unique problem confronting people such as yourselves, dealing with Exemplary projects in the field of education. As the administrator is conceptualized more in terms of being a change agent than simply the efficient maintainer of the status quo, which appears to predominate much of our present writing, then there will be indeed greater emphasis on project management. We might well follow the precedent set in the development of new weapons systems, space programs or special kinds of programs for the disadvantaged, in government as well as in business.

Project management is concerned specifically with the introduction of rapidly advancing technology or research into the school district in the shortest period of time possible, with the most efficient utilization of resources and with a minimum amount of dysfunction within the system. Project management can be viewed as a special set of administrative processes or techniques that help to effectuate change with a minimum of dysfunction.

In the literature that exists in the field of industry and government, particularly in the military aspects of government, project or program management is sometimes referred to as systems management. Now in most fields, and I would submit that this is true as well in education, systems management is a generic term which suggests a high degree of reliance on the systems approach. I will refer to the systems approach later on because it is closely related to project administration.

Project management concepts evolved from systems engineering approaches used in complex industrial and military production problems. This product-mission concept underlies operations and is related to what has been called PPB systems. A planning, programming, budgeting system which some call program budgeting. My own feeling is that PPBS encompasses a sound idea, but the term PPBS is a poor statement of the ideas. I've been critical of those who insist on calling the system PPBS, or program budgeting, because it is contrary to the mission orientation of the new system. A far more precise term is RADS, Resource Allocation Decisions System. RADS puts the emphasis on decisions to allocate limited resources to a stated mission. A special project is reviewed in terms of its missions with planning and programming evolving in subsequent steps.

The modifier "exemplary" in the term "exemplary program" implies uniqueness or that the program is full of promise. But the key concept is program. We have a bit of a hang-up in administration as to what constitutes or how one defines a program. Within the next decade, we will evolve a programmatic classification system for all of education. Right now, your projects are unique in that they represent a program that is somewhat separate and distinct from the typical ways of organizing education. It is a great challenge. It will take at least a decade for this challenge to be realized.

It can be defined as any cluster of activities related in a significant way to achievement of a stated mission.

An exemplary project may be perceived as a set of activities which are related in an intimate way to the achievement of a mission or a given set of objectives. The success of an exemplary project is measured by the degree the particular goal was attained. Again please note the very close relationship between the program definition and accountability. Accountability is basically a political term. It is a term which has clearly deposed relevance as being the "in" term. Two years ago, we talked about all things being relevant. Now, we are in the period where the word accountability pops up instead. It seems to stand by itself. This is suspect because accountability means that you are accountable for some thing. The implication is that everybody understands that accountability is related to results. What the term accountability achieves is relatively unique in that it switches the focus from simple itemization of the input, or a description of the process, to results, the end product, or the output achieved.

Accountability is a political term whereas productivity is an economic term and assessment is an educational term. At least the better term is more familiar and has been used for a more extended period of time in education. In effect, all are output oriented and are somewhat related to what we call the program approach where one speaks of a math program, science program, music program, art program, and even vocational program. This has been the traditional way of describing and organizing educational institutions. There are some in the PPBS field who tend to stress the idea that PPBS is a kind of a cost accounting system, that is, it helps you know how much was spent for science in the elementary school or in the secondary school. I would submit that this is not related in an intimate way to the program definition presented herein. To program in the sense suggested herein is to think in terms of missions to be accomplished rather than the processes of instruction in such fields as science, mathematics, or vocational education. Again it is more in terms of the output than in the number of people assigned.

There is a need to appoint someone, such as those present, as project managers with overall responsibilities for planning, for operation, and ultimate outcomes of the project. More than likely, the position of the project manager will be somewhat unique. It may be superimposed upon the existing formal, and functional, organization. We can justify this on the grounds that what we are attempting to bring about is a significant change in the system. It can be argued that the framework that has persisted thus far is not the best framework for creating change. In program management there is a call for organizational modification. This does create a new and more complex set of organizational relationships. And herein lies one of the big worries, in my estimation, for directors of exemplary projects. There are relationships within the project itself demanding leadership in organizing, in staffing, and in coordinating. The relationships established between the project and the rest of the system are crucial. The project is a subset of the total system. A clear definition of the place of this project in the overall educational operation is a must if any degree of success is possible at the termination of the project. To whom does the project director report and can the project director cut

across existing administrative relationships or hierarchical relationships within the total system? These are crucial questions. The development of a new weapons system in the military, or the operation of a space program, makes it necessary to cut across existing organizational relationships, lines of authority so to speak, to achieve this goal. These operational prerogatives may irritate some people. There are vested interests as to who has authority to speak to the chief executive on a particular issue. Some may argue that if you look at the formal chart of organization in the school system, the project manager should report to a given administration and to no others. Most project managers report directly to the chief executive of the department in which the project is located, if not to the chief executive of the entire system. If I were a project manager, one of the very first things I would insist upon would be that there be a clear definition of reporting responsibilities and relationships. This is important for reasons other than aggrandizement. The issue is not that you are trying to build an empire, but rather of recognizing the intricate human relationships and the petty jealousies which could be generated if these were ignored. It will be extremely difficult for a project manager to fulfill responsibilities laid at his doorstep without a clear definition of authority as coordinator or expediter within the system to cut through the usual subordinate lines of authority. This may help to avoid conflict with the functional administrators, such as principals, directors, deans or department heads, while striving to realize the goals of the project.

You must define the boundaries of operation very carefully: You must specify to whom the project manager reports. You must have a clear understanding of what kinds of resources, and their magnitude, are available to the project. You must he aware of the freedom of movement, so to speak, within the system.

The project manager's task usually has a definite time limit unless it is revised at a subsequent point in time, such as two, three, or four years. He is usually given set resources upon which to draw. If there is a need for more resources, then clearly some kind of major budget alteration must be made which entails special and formally granted permission.

When the project is completed, it is assumed that the project manager is assigned to other activities. There are occasions, and sometimes this is not clear, where the individual is employed simply for the project and there is no guarantee that he has any tenure in other parts of the system once the project is terminated. Unfortunately, those who do the employing are somewhat fuzzy in specifying tenure at the time of hiring the project manager. In turn, the project manager, while employing other personnel involved in the project, may be unable to clarify the status of such personnel within the organization. Thus, a secretary may obtain the impression that she is being hired by the school system and is a regular employee of that system, no matter what happens to the project. The assistant project director or the specialists who are involved may have similar feelings. The failure to specify the limits of employment may generate problems later on. And I think you will discover, as frankly I discovered in the launching of a new project within the American Association of School Administrators, that you don't always think of every little detail when you start an operation.

Let me relate, as a point of illustration, from my own experience in project administration. We employed an associate director for the project. He was given the title of Associate Director for the NASE. We failed to define his relationship to the AASA in general at that time. Now, my initial position in AASA was as Associate Secretary (in addition to the Academy project, I served as secretary of the Ethics Committee, secretary of the Committee for Advancement of School Administration, etc.) So I wore several hats and my base in AASA was clear. Your position in the system may be clear if you were employed prior to your appointment as project manager. I assumed that an associate of mine in the Academy would bear a similar relationship to AASA but I was wrong in that assumption. At the time of employment, he should have clarified whether an Associate Director of the National Academy was also an Assistant Secretary of AASA. Then his position in the total organization would have been clear, and a greater degree of permanence on the staff would have been recognized even if the project was terminated.

I believe there is a trend toward greater utilization of micro-administration, that is, an increasing importance and greater utilization of program managers. Project administration is likely to grow rather than diminish in public education. My position is based on the assumption that the emphasis on innovation will grow rather than recede in the days ahead. I believe there will be more exemplary projects rather than fewer. There will be a larger number of projects and pilot studies placed in a natural school setting involving teachers, classrooms, students, and buildings under the jurisdiction of a functional administrator, such as a principal, a director of a vocational technical school, a dean of a college of education, or the chief of a department in a state department of education.

Project administration may be conceived in terms of specified processes. Before moving into this, of course, there is a need for definition of the project mission. I am assuming that this will have been done or the exemplary project would not have been created in the first place. Then comes the project plan. This is extremely important. I suspect that very often administration gets so involved in operation, in putting out the fires, that the aspects of project administration most likely to be neglected are project planning and evaluation of the planning. This is true of long-range planning for the entire period of the project, as well as for short-range planning, that which is to be accomplished within a given fiscal period or a part of a fiscal period. Assessment to determine whether or not the plans were achieved is neglected more often than not. This is intimately related to project control. Control is considered by some to be a dirty word because it implies dictatorial behavior. I will submit that unless the project administrator develops an early warning system which will tell him (far enough in advance so that he can begin corrections) that the project is falling way behind schedule; or that there are inter-personal difficulties which are generating a potential crisis; or that the project is in serious financial trouble, the probability of success will be diminished. The project administrator needs an intelligence system, if you will, to provide the kinds of information input, or a feedback loop to allow him to interpret the state of affairs. He may discover difficulties only after it is much too late, or when the project blows up completely.

The thermostat is a mechanism which senses the environment and within about a 2-degree range can set into motion corrective activities. We should have the capability to do the same and I am suggesting that as project director, you must be concerned with the control elements; not in the sense of dictating what shall be done, but in the sense of understanding the rhythm of the project. This means being able to detect whether you are indeed locked onto the target or whether you are moving in an unproductive direction, however small the error may be, that will result in being wide of the target.

Time will permit reviewing only one of the planning devices called the systems approach. More and more people are talking about program evluation and review techniques (PERT). It is hardly new. It came out of a project environment so far as one of the well-known applications in education is concerned. The work of Des Cook, I believe, in testing and evaluation at Ohio State, led him to be interested in a particular systems technique which enabled him as a project director to have a better understanding of how best to organize his project, how to set a time constraint for each aspect of the project, and how to evaluate and thereby control whether the project was off or on target. I'll speak just briefly about the PERT approach.

Planning, both long- and short-range, is extremely important. I know of no football coach who would go into a game without a kind of a game plan that would specify the strengths of his team and the weaknesses of his opposition. He arranges his series of plays or activities on the field to exploit the virtues of his team and the weaknesses of the opponents so that his team might achieve the goal of victory. Obviously, every project manager must be concerned with organizational "game plans." I will talk about this only in terms of the people involved, that is the leadership concern. The plans for coordination, for supervision and control, are part of the leadership concerns. Then clearly you have a responsibility to know for what you are going to be held accountable. This is a thumbnail sketch of project management, recognizing the constraints upon my time.

As a project manager, you will have to understand what kind of auditing is to be expected -- auditing of the way you have utilized the fiscal resources placed at your disposal. You must know whether you have authority to spend money for certain things, and at what rate, and what kinds of purchases are prohibited. It may be as mundane as specifying that there is a district policy of paying 10 cents per mile for the use of the car. You may conclude that it costs more to operate a car and the district policy is wrong; so as project administrator, you decree that travel payments will be based on 12 cents per mile. Whether you know it or not, you will be held accountable for this switch in policy at the time of audit and the extra 2 cents per mile may be disallowed. What kinds of invoices you are going to have to submit as evidence of payments, what procedures you will have to follow for such pedestrian activities as purchasing, and what kind of inventory records will have to be maintained should concern you now as you start the project. Federal auditors come in sometimes two or three years after the termination of a project. They have been known to disallow Federal expenditures made outside the requirements set at the time the project started. I've heard of more than one school system using Title I being forced to return six to eight thousand dollars because they were not mindful of the Federal auditor's demands. There is an extreme position in all this. I accused the business manager in a school district

of being bitten by a Federal auditor at a very early age. The business manager was very rigid and demanded more than was desirable and necessary. This extreme can stifle and make very uncomfortable the project environment.

The point is that the care exercised at this point in time, and during the project itself, may be the thing that saves you from considerable embarrassment at the end of the project. Even though you are responsible for the substantive content of the project, that is, carrying through the given activity related to improvement of some aspect of vocational education, you still need to know enough about the business management end that it doesn't come back to haunt you. As mundane as business management may be, it is something which you cannot ignore if you hope to preserve your reputation as an effective administrator. The project manager must sharpen his administrative skills. Time permits the illustration of only a few systems techniques which have been evolved in administration. It is recommended that project administrators develop such skills. The National Academy offers seminars in Advanced PPS and Systems Analysis. Even in the intensive, one full week not all concepts can be covered adequately.

A system can be defined simply as any group of two or more people who have a goal and a plan for reaching that goal. An exemplary project is a system. If the boundaries of the system allow interaction with the surrounding environment, it is known as an open system. If there is to be a meaningful exchange between your exemplary project, as a system, and the environment surrounding it, then plans and organization must be made to achieve this particular goal. It will not happen naturally. Open systems are far more stable, more likely to change, and more likely to succeed. Closed systems, by virtue of the fact that they receive no inputs from the environment, are unmindful of the magnitude of the surround forces and may be destroyed by pent-up pressures.

The cluster of operational behavior, administrative activities, that identify a systems oriented administrator or project management would include these salient features:

1. There is a delineation of long- and short-range objectives capable of being translated into operationally meaningful activity and subsequent evaluation.

2. There is a recognition of the dynamic nature of goals and an ability to sense when new ones have emerged within the project, or when a recording of priorities among existing objectives is imperative. To succeed here, a project administrator must schedule and protect his time for planning activities and he must develop a staff large enough to enable him to do this.

(As an aside before listing the rest of system characteristics, it is well to recognize that the day of the one-man superintendent is pretty well gone by the board. Administrative teams administer most school systems. This team includes a cluster of assistant superintendents, principals, supervisors, and so on down the line. No one man can get the job done. I think that project managers would be repeating a mistake in the history of school administration if they persisted in believing that they have all of the specialized talent needed to be effective as administrators of exemplary projects. Now you may not have an operation large enough

to command full-time assistants. I'm not arguing for that. I'm not arguing for the creation of a massive bureaucracy to discharge a $50,000 or $100,000 project. There is another alternative to a development of a bureaucracy. That is to employ part-time consultant help, either outside the system or within the system. These people can be assigned on a part-time basis and funds may be dedicated to this purpose.

One of the characteristics of the systems approach is the interdisciplinary approach to problems. Let me go back again in history. Systems, or as it was then called, "operations research," really had its beginning around the time of World War II, not in the United States but in Britain. They relied heavily on this approach. Radar was a laboratory curiosity. A scientist discovered that when a radio wave of a given frequency strikes a solid object it bounces back. It can be seen as an image on a radar screen. It took scientists, engineers, and military experts working together to develop the military and airplane use of radar. Here was a teaming of a number of specialists to achieve a common goal.

Likewise, when German U-boats threatened to cripple the flow of supplies from the United States to Britain, it was the operations analysis, or the systems approach, to administration that developed a pattern of deploying ships to minimize the destructive effects of the submarines traveling in wolf packs. It was the systems approach as well which led to tripling the number of U-boat kills by aircraft. How did they do that? Traditionally, according to the military experts, the maximum explosive force for a depth charge was at one hundred feet below the surface of the water. All depth charges were set to explode at that level. Obviously, the submarine had to be at that point to feel this maximum explosive force. Mathematical analysis showed that when a plane sighted a submarine, it was assumed that the submarine sighted the plane as well.

The submarine would immediately go into a crash dive. The airplane would move into an altitude for the immediate dropping of depth bombs. A review of all the time factors involved demonstrated that the submarine simply could not be at a depth any greater than twenty-five feet below the surface of the water. But the charge was set to explode at one-hundred feet! So, the fuses had to be redesigned to explode at twenty-five feet. When the new fuses were used, the results showed that they tripled the number of U-boat kills. Again note the team approach, an inter-disciplinary approach. I think a project administrator must recognize that there are such specialized talents and he will have to bring them in to make the program operate. I go back, now, to systems characteristics.)

3. Recognition of change as normal. Organizations really can't go back to the "good old days" where all was stable and little changed.

4. The generation of alternatives means utilizing resources to reach objectives. What makes your project exemplary (and makes you a qualified director of an exemplary project), is your willingness to maintain the degree of flexibility necessary to switch to new means in order to utilize your resources and obtain objectives. After all, it's the objective, rather than the means of the process, that is important.

5. The creation of models to study all or part of the system. Models have been talked about in this program -- models of a dissemination system and of an informative system. I speak of a model of project management. By a model, I simply mean clear identification of the key factor, and sensing the relationships or patterns existing among the factors.

6. The utilization of quantitatively oriented tools, vehicles, and procedures in the analysis of systems. Here again, I doubt whether there is a fraction of 1% of superintendents of schools, much less project managers, who can handle linear programming. I'm not suggesting that project managers have mathematical skills. They ought to know the advantages of mathematical analysis and go out on the market and buy such skills.

7. Identification of high priority of the time schedule of the top echelon to administrative and planning activities. I've talked about the interdisciplinary team and a consideration of coordination of the ever growing number of specialists within your project as a matter of high echelon concern. It is entirely possible that specialists within a given exemplary project will go off by themselves and think that they are important as a group, unrelated to the project itself.

8. Lastly, recognizing the importance of an implementation of sophisticated objectives and scientifically oriented procedures in decision making.

A host of techniques have been developed for systems administration. Time precludes talking about PERT, which I have already mentioned. There are a host of others as well. But what I am saying is that you literally are in the initial wave as far as the administration of education is concerned. I think we are going to see more of project administration in education, rather than less. I am saying that you have the additional task of not only knowing what your project is all about in a substantive way, but also of developing concepts and skills that will make you an efficient administrator of your project as well.

SECTION XIII

EXPECTATIONS FOR EXEMPLARY PROJECT DIRECTORS BY

THE PILOT AND DEMONSTRATION BRANCH, U.S.O.E.

Expectations for Exemplary Project Directors

by the

Pilot and Demonstration Branch, U.S.O.E.

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In this paper I would like to highlight some broad expectations, or more specifically, what is expected of the sale of Part D of the Vocational Education Amendments of 1968. Why did Congress put it in the Act? And what are exemplary projects across the nation expected to accomplish?

If one looks back to the Vocational Education Act of 1963, he will recall that for the first time Congress put in a provision for vocational research. Section 4-c of the 1963 Act stated that 10 percent of the appropriation for vocational education should be reserved by the U. S. Commissioner of Education for research and development. I think that it is safe to say that this was the first time in history that a sizeable amount of money was especially earmarked for this purpose. Section 4-c was first funded in Fiscal Year 1965 and it continued in operation for five years, during which period approximately $64 million were invested in vocational research. That's more research in the vocational area than has been done in the whole previous history of the Republic. The result was, of course, a very intensive five-year period of vocational research and development.

As Congress looked at these five years of activity, they formed the impression that a great deal of the research and development had been carefully done and well conceived. However, this excellent research had gone onto microfiche and had been put into the ERIC system, and there it remained. And so, Congressmen were concerned about what could be done in order to take some of this extensive and expensive research and development work off the shelf, out of the ERIC system, and into the local school districts where it might be put to use in improving vocational education.

At that point, Congress conceived in the Vocational Education Amendments of 1968 the idea of Part D for "exemplary projects." What they were saying, in effect, in Part D was "Here is some Federal start-up money to help those, who, during the next three years, are willing to take some of the research and development

out of the ERIC collection and bring various components together in a way that will be useful in operating a better vocational program in a local district." Further, it has been assumed that after three years, when the heavy start-up costs are over, and the maintenance costs are beginning to level off on a continuing basis, then state and local resources will be able to continue these new activities.

The projects funded under Part D are intended to give us some exemplary type vocational activity in every state and territory in the Union. Therefore, Congress wrote a formula into the Act which stipulates that whatever amount of money is appropriated will be pro-rated among the states and that grants will be awarded in every state and territory. The purpose, then, was to create a bridge between the research and development which is done under Part C of the Act and the actual operations out in the field; Part D is the bridge between the operator in the field and the researcher who is working under Part C.

So it seems to me that this is what Congress expects of all those who work in exemplary projects - that they will, in fact, constitute a bridge and bring into operation some research-based exemplary projects in every state and territory.

Working on a State-By-State Basis

When one looks at the problem of improving education across the nation, he is staggered by the fact that there are more than 19,000 separate school districts in the United States. A lot of people throw up their hands, saying that it is just about impossible to bring about change in that many school districts. However, I think if we look at it within the frame of reference of Part D of the Act, the problems become much more manageable. Now that Congress has said, "We want some exemplary activities going on in every state," we can begin to look at the number of districts in each state. For example, in the state of Delaware, there are twenty-one school districts. If in even one of those school districts, one can bring an exemplary vocational education program into operation, it's within reason to assume that it could begin to spread to the other twenty districts in that state. In other words, it becomes a manageable problem when viewed on a state-by-state basis. One doesn't have to move all 19,000 school districts at once. Rather, within each state there can be established tailor-made exemplary projects that are used as leverage to bring out changes that suit the needs and conditions in that particular state.

I believe that in general Part D of the Vocational Education Amendments of 1968 has been a carefully thought out, well conceived piece of legislation which provides a good base from which to work. Those concerned with vocational exemplary programs have a relatively clear mandate from Congress as to what is expected of them, and it obviously behooves them to fulfill these expectations as efficiently as possible in order to convince Congress that this sort of effort is worthy of their continuing attention and support. In this regard, the Office of Education will be needing all sorts of feedback from project managers as time goes on in terms of advances that they are making, successes they are achieving, and other things that can be reported to Congress as evidence of the efficiency with which this job is being done.

Division of Responsibility Between Project Managers and the State Office

At this stage of the game, it is important to distinguish between the two kinds of people who are involved in each exemplary project. First we have the local project directors (the people who will actually manage the individual projects) and second, we have personnel in state divisions of vocational education. These really are two different kinds of people with different concerns.

Three major features of the exemplary projects are: 1) how does one go about setting up, bringing into operation and effectively managing it? 2) evaluating the project, and 3) disseminating or diffusing the techniques developed to other school districts in the state. It may be useful to divide these three aspects up in relation to the two kinds of people mentioned above.

Obviously, starting up the project, managing it and conducting it in an efficient manner is the responsibility of the local project director. On the other hand, dissemination is the primary responsibility of the state office of vocational education. The local project director really shouldn't be expected to "toot his own horn" and to try to sell his system and techniques around the state. In contrast, it is a perfectly valid function for the state office to spread the word around to other school districts -- to use various means to get other school districts to look at and adopt the exemplary program.

The third aspect, evaluation, is a shared function. The local project director has to be concerned with evaluation as a management tool, if for no other reason. He needs continuous feedback from evaluation so that, for example, he may discover that certain parts of the operation are not working as they should and he should therefore put more manpower into these phases or use a different approach. At the same time, evaluation is obviously an important concern of the state people because unless they have a rigorous evaluation to assure them that this project is good and is doing what they want it to do, they shouldn't take extensive steps to disseminate it. In other words, they want to be sure they have a good product *before* they begin to market it. Needless to say, evaluation is of great concern to the Federal group, also, because it has been written into the official regulations that we must have an independent, third-party evaluation of each exemplary project.

I would like to highlight the role of the regional offices of the U. S. Office of Education in connection with exemplary projects. I think that in Part D, more than in any other part of the Act, we have relied very heavily on the regional offices and they have been heavily involved. We've depended on them to get around and work with the states for the simple reason that there are so few of us in our Branch that it is physically impossible for us to do it all. Had it not been for the effective assistance of the regional offices, we wouldn't have been able to move as far as we have. We expect to continue this close working relationship with them; we hope that they will be involved with us in site visits and periodic checks on the projects, and that they will continue to be sources of technical assistance to project managers.

These, then, are the broad expectations of the Act -- the sorts of broad things that Congress seems to expect from Federal personnel, state officials, and local project directors.

What is Expected of Project Managers

First there is a need to sharpen project objectives and put them into more measurable terms. Further, while every project is directed in a general sense toward the five broad goals stated by the U. S. Office of Education, there is a need in most of the proposals to relate each cluster of specific objectives directly to one of these goals.

The second expectation from project managers is that they will develop an evaluation plan. This is not difficult to do if they have a good set of objectives; that is, if the objectives are properly stated, it is not too difficult to determine what criteria would be appropriate for indicating the extent to which each objective has been accomplished and then to lay out the details of an evaluation plan.

A third thing project managers need to give attention to is the development of a network analysis charting of the procedure they are going to use. While it doesn't have to be PERT (although this may he the best approach), there should be some sort of analysis chart which lays out in visual form the steps that are going to be taken at least during the first twelve months of the project.

Charting out the objectives is not very difficult if one has a clear concept of 1) exactly what his specific objectives are and, 2) what steps he is going to take to arrive at each objective. As one begins to chart the procedures out, he may find that he has omitted some necessary steps. These omissions will show on the chart as things which don't link up.

For those who are not yet familiar with charting techniques, I would recommend that they examine a little booklet entitled Program Evaluation and Review Technique: Applications in Education. The booklet, which was written by Desmond L. Cook of Ohio State University, is available in the ERIC system under the file number ED-015-533 and can be purchased on microfiche for fifty cents.

The charts should address the five broad goals which are built-in features of every exemplary project and which stipulate that provisions should be made for 1) broad occupational orientation for all students at the elementary and secondary levels, 2) work experience, cooperative education and similar programs, 3) specific training in job-entry skills before leaving school for students not previously enrolled in vocational programs, 4) intensive occupational guidance and counseling during the last years of school and initial placement of all students upon completion of their studies; and 5) carrying on the program with support from regular funding sources after a maximum of three years of Federal assistance (U.S.O.E. Bureau of Adult, Vocational, and Library Programs, "Highlights of Provisions for Exemplary Programs and Projects in Vocational Education." Policy Paper No. AVL-V70-1, Washington, D. C., October 2, 1969).

Charting has many advantages for the project director. For instance, if in any one element, he sees that the work is falling behind schedule and that some of the other elements are therefore going to be held up, he is then aware of the fact that he has to do something to speed up that aspect so that it won't fail to cut in at the right time and delay progress in the other elements. Charting is simply a useful management tool to which all managers ought to devote some time. An annual PERT chart may be the best approach. Toward the end of the first year, managers could begin preparing the chart for the second twelve-month period.

A fourth expectation we have of the project director is that he make maximum use of off-the-shelf material and do a minimum amount of new development. As we have tried to indicate, this is not a research and development program; we want to make the maximum use of the many things on which research and development have already been done. Of course, research findings have to be adapted to each local situation. However, the manager can start with the validated studies that are already available and adapt them in his project to the maximum extent possible. Given the limited funding available (somewhere between $100,000 and $150,000 per project per year), it just isn't possible to do extensive development. Instructional material development costs a lot more money than is available. So the funds have to be used as operational money for making the projects go.

For example, North Carolina State University's Center for Occupational Education has recently announced that for $10, within a few days a computerized search will be made of the descriptors of all 35,000 ERIC documents dealing with educational research and a print-out will be prepared which lists the title and file number of every document that might be relevant to the inquirer. Just five years ago, this would have seemed impossible! Each exemplary project office should be equipped with a little desk top microfiche reader (which can be purchased for $100-$200). An overview of the kinds and brands of microfiche readers available on the market can be found in an article by V. D. Tate and R. D. Wolf entitled "A Study of Microfiche Readers and Reader-Printers Currently Manufactured in the United States." This article, which originally appeared in National Microfilm Journal, 1967, 1: 1-17, is now available as a reprint and can be ordered for 50 cents from: The Executive Secretary, National Microfilm Association, 250 Prince George Street, P. O. Box 386, Annapolis, Maryland, 21404. Another helpful overview is provided in a mimeographed paper entitled "Descriptive Index to Readers, Printers, and Reader-Printers for Microfiche." This paper can be obtained free of charge by writing to: ERIC Clearinghouse for the Teaching of English, National Council on Teaching of English, 508 South Sixth Street, Champaign, Illinois 61820.

We have already had a search made of all the ERIC documents available as of November 1969, and the ERIC specialists pulled out for us a listing of forty to fifty of the most important documents related to each of our broad goals.

We got that information out to the field in December of 1969. The listings themselves, which are really bibliographies, have now been entered in the ERIC collection. Their file numbers are: ED-033-255, ED-034-062, ED-034-061, and ED-033-254.

The first microfiche (ED-033-255) deals with documents related to our broad occuptional awareness goal. It describes projects that have attempted to develop materials and techniques for elementary and secondary school youngsters to make them aware of the broad range of occupations in the world of work. It lists the titles, the "ED" file numbers and the cost of all the documents that are cited. Similiarly, each of the other microfiche (ED-033-254, ED-034-062, ED-034-061) focuses on another of the broad goals and provides the titles, the "ED" file numbers, and the cost of selected documents related to the accomplishment of that goal.

It costs about $100 to buy microfiche reproductions of all the documents that are cited with "ED" numbers in all four of these basic or "bibliographic" microfiche. That means that for about $100 a project manager would have everything out of the ERIC system that, as of November 1969, was considered of critical importance to the kind of work he will be doing in his exemplary project.

Let us assume that he spends $150 for a moderately priced, desk-top microfiche reader, plus the $100 for the microfiche reproductions of significant documents. For a total of $250, he will thus have available the whole backlog of related research and development work, right on his own premises, so that his staff members can sit right in their own exemplary project office and review the research and development materials in relation to the project components which they are developing. And I do not think $250 is too much to spend to give a project a pipeline into the one-half billion dollars worth of research and development results that are stored in the ERIC system.

From time to time, we will try to help update the collection of relevant microfiche. It is to be assumed that as ongoing research and development projects are completed, additional materials will be flowing continually into the ERIC system; some of these new materials will undoubtedly be useful in connection with work on the five broad goals of the exemplary projects. As these new materials accumulate, we will try to mail out a notice to all of our exemplary project directors, perhaps every six months or so, listing the titles and the "ED" file numbers of new ERIC documents which we think might be useful in the development and operation of exemplary projects. This will provide for a continual flow of new research and development materials into the framework of the exemplary projects. I think it is incumbent upon project managers to follow through, to take advantage of the ERIC system, and to try to keep serving as a bridge between research and development work and the operations and are going on in the projects.

The fifth expectation (and I suppose we are going down now to the more mundane levels) is that each project director will submit quarterly reports to the Office of Education. The first report will be due ninety days after the starting date, with subsequent reports due every three months thereafter.

Thus, every three months, we will have some sort of feel of how each project has moved, how things are going in general, and where the problem areas are. The

report doesn't have to be elaborate (I don't think any of us in the Pilot and Demonstration Branch want to have to go through a 100 or 200 page report). However, it should be comprehensive enough to establish in each project's files and in our records an account of what happened during that quarter (e.g., what progress was made? Did the project fall behind schedule? If so, what are the problems? Are there any kinds of things that the U.S.O.E. Washington Office or U.S.O.E. Regional Office or the State Division of Vocational Education might to do help overcome these problems?) Those are the kinds of things which should be put in the quarterly report, which, in essence, will be our main way of keeping in touch with what's going on within each project.

Beyond that, the requirements call for an interim report once a year. (In other words, three quarterly reports will be submitted and then, at the end of the fourth quarter, there will be an annual interim report prepared which will summarize for us what has happened during the whole twelve-month period.) In addition, one section of the annual interim report will be the first annual evaluation report which the outside, third party contractor has produced.

Once we have that annual interim report in hand, we are then expected to make a site visit. We will expect to join forces with our U.S.O.E. Regional Office personnel and with someone from the State Division of Vocational Education and go right out to the site of the project to look at the interim report and the evaluation report, compare them with what's going on, and talk with the project people and with students and parents. At that point, a decision has to be made about the second year of funding. Obviously, if a project is going sour and failing to make progress, there is no use putting good money after the bad. It is better to shut it off and start another exemplary project somewhere else in that state. On the other hand, if things are going along smoothly and good progress is being made, we want to put the second and third years of funding in and keep the project moving.

Budgetary Considerations

In addition, at this time we will also expect to examine the budget for the second year and the PERT chart (or equivalent), showing the precise steps to be followed during the next twelve months. Toward the end of the first twelve months, the project manager ought to be able to project ahead fairly accurately in terms of what his second-year requirements are going to be. He may decide that he needs more money in "Supplies" and less money in "Personnel," or that he needs more money for travel and less money for something else. Further his understanding of the requirements will change over the course of the first year. During the site visit, we will take these changes, as well as what was accomplished during the first year, into account in projecting ahead toward the second twelve months.

The budget which is attached to the contract is rigid once the contract is signed by the project manager's institution and the U.S.O.E. Contract Office. If

the project manager wants to change, he has to write to Washington and give a rationale for the proposed changes (e.g., he might say something like: "We find that we had too much money in travel; on the other hand, we have found some exciting instructional materials which we want to use in our program. So, we want to shift some money out of the "Travel" item into the "Instructional Materials" item). If the request is reasonable, I think it is fairly easy to have the budget amended. But the manager must be sure to go through the step of submitting a written amendment to the budget; he should not just start unilaterally spending in a new funding pattern without a prior written clearance from the U.S.O.E. Contract Officer.

The second year budget is still flexible, however; the initial contract is signed with only the first year budget detailed and firm. When we are ready to fund the second year, the project director will have a chance to readjust the budget in any way he thinks necessary and negotiate on that basis with the Contract Officer.

Disallowances of Expenses

It can hardly be overemphasized that any changes in the scope of work in the project or in the budget require official amendment to the contract. Managers should send a written request if they want to make any substantial change in the scope of work, and get it approved as an amendment to the contract, regardless of what has been agreed to by us or others. If this is not done, an auditor can later disallow any expenses incurred in the change.

As a matter of fact, there are regulations that say that all the reports and records of a project have to be kept for at least five years after the terminal date of the project. At any time during that period, the Federal auditors can come in and check the approved budget against all the receipts, vouchers, etc., in an attempt to find discrepancies. Thus, it is very important for the manager to keep all expenses related to particular line items in the budget so that the books will protect him during an audit.

Finally, of course, there are also allowable expenses spelled out in the Federal Regulations. Project managers will soon receive a copy of the final regulations, which were revised for printing in July (Refer to the Federal Register, Vol. 35, No. 143: Friday, July 24, 1970; Part II; Sub-parts A, C, and E). Until then, they should refer to Appendix B of the preliminary manual which contains a draft of the Federal Regulations for Part D projects (Manual: Instructions and Procedures; Exemplary Programs and Projects in Vocational Education. November 1, 1969). See page 22 of the manual for "allowable costs."

Managers are cautioned not to spend money for anything that is not allowable. For example, the construction of buildings is not an allowable cost.

In concluding, I believe that the exemplary projects in vocational-technical education can occupy a key part in the continuum of educational innovation. If carefully developed and managed, they will serve as a vital mechanism for accomplishing the translation of research and development work into improved operations in the field.

SECTION XIV

RESUME OF

INSTITUTE PROCEEDINGS

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Dr. Howard H. McFann

Director, Division #3, HumRRO

The purpose of this conference, as I see it, is to bring together the relevant parties involved in exemplary programs for: 1) a greater understanding of the reasons for emphasis on these projects; 2) a means of guidance for the development of a rationale as to what is expected by all parties involved in the projects; 3) suggestions of possible approaches to be taken in project development along with pointing out some of the pitfalls of the same; and 4) an opportunity for the people to become better acquainted and aware of the fact that they do indeed share a common goal. Let me comment briefly on the emphasis of this week's program as I heard it described.

It goes back, I guess, to a mandate from the public, the president, and the Congress, for education to produce. And as one gentleman stated it, "Paint or get off the ladder." I think this describes very well the position of our public.

There also has been a formal recognition of the problem which was given by the Associate Commissioner, Dr. Hardwick, when he stated, "In the administration and levels of efficiency in most state vocational staffs, you will find incompetencies, fumbling, and few services rendered; further, their vocational education programs cannot be defined and the deficiencies cannot be measured." Then I think, there has been, very importantly, a formal recognition by Congress of the importance of vocational education. This, to me, reflects back on the fact that the public sees the great role vocational education can play. It's a role I happen to feel very strongly about. Because of Sputnik, people got all concerned about the academic programs and they forgot all about the vocational part of education. Now people are again becoming aware of the fact that there is this great potential in vocational education. This is a great responsibility and this is a fact that came through a great deal in the comments from many of the early speakers. In Title I it was difficult to see any change and I think this accounts for the emphasis here on the aspect of outside evaluation. You are going to have to point very carefully to the processes you have used, and the aspect of dissemination comes in at this point. I suspect there were some very good things done under Title I, but they got lost. I believe this must have been the reason for the new emphasis at the Federal level at which it was decided that we should take these Part D funds and make sure they are applied in a systematic way, rather than saying, "Here is some money, now do your best."

In spite of mandated criteria, great freedom has been given to each project, and I think there is an expectation of a wide variety of approaches and solutions

in each case. This was further elaborated when various examples of programs were pointed out. I think it is the intent for you to show that there are a lot of ways to solve the problem. Nevertheless, it is a common problem that you are to solve; you are not to try to solve a variety of problems. The great emphasis all the way through is upon getting your objective stated explicitly so that it will be clear what problem you are trying to solve. It's somewhat the old story of "if you don't know where you are going, it doesn't matter much what route you take." I think in the past, many of us have been guilty of finding that there were some very interesting scenic routes, but we didn't quite know where we were going.

There was another expectation stated. It was that you should be truly innovative. You are to make waves and not represent the status quo. I see your job as that of an engineer. You are not researchers, you are not developers, you are engineers. You are applying technology to the solution of a problem. Now obviously you have to tailor when you start engineering. I think you have to very carefully state your constraints and I think you have to be extremely sensitive to what modifications have been made by you as an engineer.

I think there is another point which came through. It is expected that you will solve the problem and even if you don't reach the optimal goal, you can and will reach a satisfactory solution. A great deal is resting on you people. I am convinced there is a great deal of educational technology which can be applied to your projects. Obviously you people are sensitive to this technology. There was talk about role differentiation, about the use of the systems approach, etc. I do believe the educational technology available has sorely lacked application, and here is an opportunity to do it.

It also is expected that you are to be able to state explicitly the problem, and the process employed in attempting to solve the problem, and how closely you come to reaching your desired objectives. A considerable amount of attention was given to how you might evaluate. Early in the session there was an idea that you might have a common evaluation procedure. This would make sense only if you were all working on the same objective. You are working on the same goal, but not on the same objective. I think when you start your engineering, you will have to tie your evaluation very closely to that engineering. I would personally feel that you would have to conduct specific evaluations as opposed to a general one. In regard to other aspects of the evaluation, I would encourage you to use multiple criteria. Don't go for broke on particular criteria. Another thing I would encourage is that when you are looking at your evaluation initially, don't be too concerned at first glance if you don't know how to measure it. Spend a little time trying to be innovative in this sense. The idea of the outside evaluator goes way back to what the impetus is for this whole evaluation activity. Can you do your own evaluation? Well, let me ignore the methodological problems of people trying to evaluate themselves. We can all try to evaluate ourselves but there can be problems. The public desires to have an outside evaluation so an outside individual can say to the public, "Yes, they really did succeed in this manner." It becomes much more believable. This is one of the reasons why the outside evaluation is more necessary.

This is also where accountability comes into focus. It is not just accountability to the profession, it is also accountability to the public.

Everyone agreed with the idea of using some type of systems approach. Bob Barnes gave a very good flow chart; it was excellent because it had been derived empirically and because it gave you a lot of decision points.

The administration of your project implies that you have stated explicitly your goals. It also implies you then have a system, perhaps a resource allocation system. I think this is going to be one of the real problems you will have in project management. There is so much to be done; where do you spend your money? This is all the more reason for stating what is going on and track it very carefully from inside your own management system. I think everyone realizes that evaluation is not going to occur outside the system. As project managers, you have to track very carefully what is going on and you have to have continuous evaluation, and that outside evaluation is a supportive, corollary, and cooperative evaluation.

Everyone has told you to define the problem using the systems approach. There is quite a bit of literature on this and there are quite a few documents that have been written on how to state objectives. A whole series of people have written on this and I would encourage looking at these documents, because a systems approach does take a little practice and since other people have gone through it, there is no sense in your having to start from scratch. I think there has been a fair amount of good material written on the development of instructional systems.

Also, keep in mind the fact that the Army, the Air Force, and the Navy have, for twenty years, been producing a great deal of research and there is a lot of package stuff they have developed which you can use. They have many of these programs and some of them have been tried out and proved to be successful. This is a great source for information and I would encourage your use of this material.

Let me talk a little bit about what I heard people saying you ought to be doing generally. They say you ought to be talking about the change in the role of teachers where the teacher should not be the imparter of information but the teacher should take on the role of diagnostician, maintainer, and programmer in some form. As you try to put into effect the programs, the biggest problem you are going to have is to get adequate change and acceptance on the part of the people you are trying to have put in the program. Top management is easy to talk to, but when you get down to the level of the operators, you have a great deal of trouble getting them to change their behavior and I would encourage some systematic quality control to assure that what you think is happening is really happening. Otherwise you will get all kinds of verbal agreement and still get no change in behavior. Also, in my experience, the vocational educator has been viewed as a second-class citizen within many of the school systems. We still need quite a bit of selling to overcome some of these concepts. As someone said, "Vocational education is always for someone else's child."

There seems to be a great deal of emphasis here on "individualization," which is a good catch word. It is, nevertheless, very difficult to attain. As soon as you talk about individualization, you are talking about management problems. This is why we have stayed with the extremely efficient system we have, even though it is not very effective.

For the last three or four years, we have been working on the problem of "so-called" low aptitude individuals. We talk about the young fellow who failed in the school system and then was taken into the Armed Forces. He had been told so many times that he was a "successful failure" that he believed it. I think one of the things you are going to find out is that when you start dealing with these people, this whole problem of self-concept is going to be a very big concern. This deals with attitudes and they are almost impossible to measure. If you forget that, you are in trouble. We have found this to be extremely important. We also have found that with the low aptitude person, when you get rid of this subject matter approach and use a fact approach (where there is a meaningful activity which he can see), then he does learn and it turns him on to further learning. We have also found that it takes this fellow about four or five times as long to learn, so this means you are going to have to set up your program to allow for variable time elements. Our data also shows that after he has learned a task, he will retain it as long as anyone else. He retains it as well as if he had mastered it on his own. So please, go for a mastery concept and do not allow this youngster to move on to another level before he has mastered the enabling level. This is why youngsters who have spent ten years in our school system are reading at the fourth grade level. We have had the experience of a person finding a written page so adverse that they cannot look at it. That says something about our school system and the problems you will have to face. It has to go towards simulation, towards a task approach; we must get away from subject matter.

We have also found that the training method approach for the low ability individual is critical as to whether or not he learns. The guy down at the bottom needs instruction; he needs support; he needs to have a system of success. And if you provide this, he does turn on, and he does learn.

One of the problems you have in achieving this is the teacher-student ratio. How do you achieve this when you have one teacher and thirty students? A technique we have found very valuable is the buddy and peer system of instruction. I would encourage your consideration of this technique as long as you have good quality control. By this I mean you must ensure that the one peer who is going to play the role of the teacher has in fact learned and mastered the material. We found in some studies that peer instructors talk to people, and then the people they talked to talk to other people. The result is that eventually everyone has these skills. We also found out that when we used an outside evaluation, the quality of instruction did not go down; mastery maintained itself. What did go down was the time needed to teach a concept. They threw out all the superfluous material and they knew what was important.

This gets to another point I want to make on the statement of objectives: When are we going to consider getting the student involved in determining objectives? If we were really talking about innovation and change, then we must consider the student's objectives and goals. I think they tend to have fairly realistic ones.

When you talked about dissemination, it became clear that you are agents for change and that is what exemplary programs are all about. It is important in the dissemination process that you record what you did, how you did it, and how successful you were in the process. This is another reason for the emphasis being placed on

record keeping, on evaluation. However, it is absurd to think that you have the primary responsibility as agents for change. The primary responsibility is at the Federal level and they have initiated it by starting these projects. If you have adequate information and are dedicated to your project, I refuse to believe that you can fail completely. It may not meet your ultimate objectives, but you should come close.

The next stage of dissemination involves the movement of information from you to others throughout the country. That's why you have to be careful to record everything and then forward it up to the state level and from there, up to the Federal level. They also have a role, a responsibility, in this process of dissemination.

I also think a lot of role definition has occurred, and there have been quite a few suggestions on possible approaches to this problem. The systems approach, for one, has been repeatedly suggested. You know what this means. You must define your problem in very explicit terms so that you can then set up measuring instruments. It is not so profound. Most of the time I notice that in development work, we jump into the middle of the problem before it is defined I would encourage you to spend a good amount of your time early in this process explicitly stating as much as you can about your objectives, your approaches, and your resource allocations.

One thing not mentioned but which was alluded to was the question regarding some form of contingency management. This is an extremely powerful technique and it doesn't always call for money to be expended. All it says is that you find out what is important to the success of the program and then you set up the contingencies.

I think this Institute has been an excellent opportunity for people to become very much better acquainted. There is a desire for greater communication between project directors and obviously this is necessary. There is also the danger that one or two of you are innovators and the rest of you are copiers. I don't think that was the intent of the legislation. Rather the intent here is to help you discover a broad variety of ways to solve the problem. I would therefore encourage you not to limit your communications to the other project directors but also to use ERIC as well as other resources.

In closing, I would say to you as you go down this exemplary banister, I hope that all the splinters are pointing downwards for each of you along the way.